

April 1935

TECHNOLOGY

REVIEW

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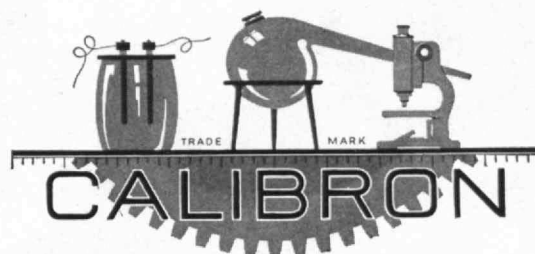
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THE TABULAR VIEW

IT WAS a foregone conclusion," says Professor NORBERT WIENER in his article, "Limitations of Science," "that after the bankers and business men had had their day in court, a summons would come in due order to the scientist to prove his right to existence." A cross-sectional view of conversation today would reveal many a discussion, pro and con, of the responsibility of science and engineering for the economic troubles of the world; and through it all persists the notion of a holiday in science. Professor Wiener, internationally known mathematician, presents in his article clear and logical reasons why such a holiday is impractical. He has been a frequent contributor to *The Review*, perhaps the best known of his articles being "Mathematics and Art" (January, 1929), which testifies to the breadth of his academic knowledge, and "Leibniz and the Modern Physicists" (February, 1932), in which he writes as a specialist. Dr. Wiener has accepted an invitation to join the faculty of the National Tsing Hua University in Peking, one of the largest universities in China, as research professor of mathematics for the next academic year. In 1932 he went to Cambridge University, England, as a lecturer.

DURING his 40 years in the educational world, Professor SAMUEL C. PRESCOTT '94 has been in a position to observe those qualities which make for success in the teaching profession. An unusually successful teacher himself, Professor Prescott is Head of the Department of Biology and Public Health and Dean of Science at M.I.T. He is especially well known for his application of biology to industry, the field in which he has specialized. On several occasions he has taken leave from educational work: during the War, when he was in charge of food research and the problems of storage at the Army training camps; in 1918-1919, when he was in charge of the Division of Dehydration of the Bureau of Chemistry in Washington; and when he was for three years director of the research laboratories of the United Fruit Company in Costa Rica, where he made notable studies in food preservation. For 17 years he was director of the Boston Biochemical Laboratory, and he worked out for the first time the bacteriological aspects of the canning industry.

A PHYSICIST by training, ROBERT D. POTTER is now News Editor of Science Service. In 1931 through 1934 he was Science Editor of the *New York Herald-Tribune*. Mr. Potter holds degrees from the University of Buffalo and Duke University. His research work has included a study of ultra-ionization potentials of mercury vapor and investigation of the remote infrared region of the spectrum from 200 μ to 1,200 μ . PAUL COHEN is a senior at the Institute and recently retired editor of *The Tech*. He has made in recent months a particularly detailed study of the scrap-iron industry in all its curious ramifications.



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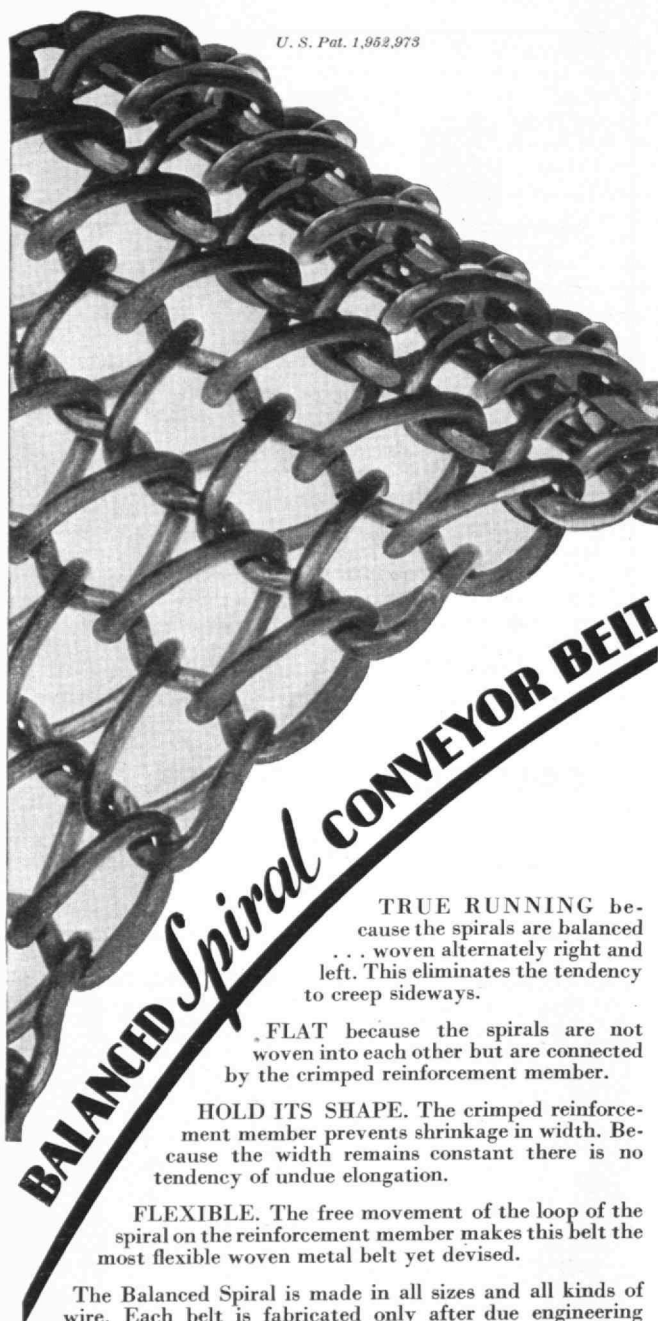
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MAIL RETURNS

Mr. Wells on the Dayton Experiment

DEAR REVIEW:

Brook Farm, from which Nathaniel Hawthorne withdrew to avoid being "nurse-maid to a cow," passed out in 1847. Books and newspaper and magazine articles explaining its failure were being generously printed well into the Nineties. There is no desire to start a 50-year controversy about the Dayton production units and subsistence-homestead project; but may I record that it is unfortunate that Professor Burdell did not get real first-hand and up-to-the-minute information concerning these late enterprises before writing the article for the March number of *The Technology Review*?

Production units and homestead units were conceived in ethical thinking and executed (the reader may use either meaning of this word) without scientific investigation or planning. Every suggestion that the schemes should be examined by the application of the methods used in the development of ordinary business ventures was met with cries of "obstructionist" from the enthusiastic promoters. The lessons of the failures of similar attempts were disregarded.

In the horse-and-buggy days, men lived on small tracts of land and worked in Dayton factories. The advent, at the end of the last century, of the network of traction lines centering in Dayton added hundreds to the number of factory workers who found satisfaction and easier living on the land or in the villages near by. Good roads and the automobile greatly increased the number. In recent years they have been known to drive to work daily from points 40 miles away. Hence Mr. Borsodi and Miss Nutting brought nothing new to Dayton, except the attempt to graft on to what we already have, the features of the Brook Farm experiment which caused its failure almost 100 years ago.

The so-called Dayton plan was doomed to failure from the first for the following reasons:

1. Those who joined the unit were promised a house, with conveniences unknown in rural communities, for less than \$1500, plus sufficient man-hours of labor to build it. The money could be borrowed from the Government. Mr. M. L. Wilson's published estimate of cost was \$2800, and the Reedsville experience to date seems to indicate a cost three times that suggested. There is no success in an enterprise under-financed.

2. Insufficient amounts were allocated for roads, sewerage, water supply, supervision, architectural and engineering service. Water, sewerage, and roads, or streets, are expensive necessities in thickly settled cities. They reach a high per capita cost when applied to homes spread out on three acre tracts.

3. There was no one included in the group of participants capable of leadership; and no one connected with the management of the enterprise having the executive ability and experience required to develop leadership or manage the technical staff necessary for successful construction.

4. The town-meeting idea of community government or management was ineffective, caused endless and costly delays, and, instead of producing the "sense of security and mental calm" of which Professor Burdell writes, produced scenes rivaling those to be found at meetings of the members of a church split three ways or Democratic conventions in the Sunny South. Lack of an appreciation and understanding of the really important matters led to hours spent in discussing trivialities.

5. The method of exchanging labor was unworkable because there was a great diversity of skill and experience. Industrious individuals having experience in the building trades rapidly accumulated labor credits which those not so skilled or not so industrious could hardly hope to liquidate. No adequate method could be devised to convert the labor credits into food, clothing, or cash.

6. Much of the work, because of lack of skill and poor supervision, was very crude, and it is fortunate for the owners of houses completed that the weather man has been most kind.

The objections raised by neighbors or prospective neighbors, were not serious at any time. They did not appear till it was proposed to establish a negro homestead in a community of white farmers. Ethical thinkers could not, of course, appreciate the very practical fear that great depreciation of the surrounding land values would surely result. It may be true that one energetic opposition (Continued on page 276)



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SYSTEM SELF-LIQUIDATING

Indianapolis, Ind.—Heating costs for the 17-story office building of the Merchants National Bank were reduced 30 per cent during the 1933-34 heating season, according to figures made public here by the building management.

"This reduction," officials explained, "was achieved after we modernized our heating system in accordance with recommendations made by Warren Webster & Company."

The annual steam bill before modernization was \$11,025, based on an average of 5,092 degree days. During the 1933-34 heating season, the first with Webster Moderator Control, the steam bill was cut to \$7,757.05, a 30 per cent reduction. This record was made despite the handicap of unusually severe weather which increased the heating load to 5,446 degree days.

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Following the sound policy of keeping the building up-to-date, the building management began an investigation in 1932 to determine if recent developments in heating system control and operation offered the possibility of reduced heating cost by changing over to purchase of steam on the basis of meter readings.

After sifting all of the modernization proposals submitted, the building management and Vonnegut, Bohn & Mueller, prominent Indianapolis architects and engineers, settled upon Webster Moderator Control with certain modifications which would result in substantially the same savings without the large expenditure necessary to convert the installation to a two-pipe system.

The equipment was installed by W. H. Johnson & Son, heating contractors, and placed in operation at the beginning of the 1933-34 heating season.

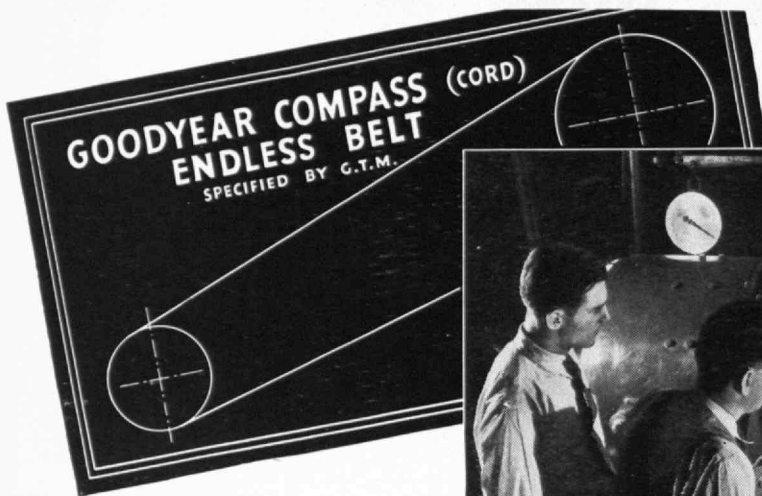
"Besides effecting a substantial reduction in our heating overhead, we have increased tenant comfort by reducing overheating," the management declared. "Operation is silent and savings have been effected without any attempt to starve the system, a range of 72 to 75 degrees being provided."

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tests have enabled Goodyear to ferret out the weak points—to make belts more nearly stretchless—to increase power capacity without increasing size and weight. In short, to develop better belts for every type of drive.

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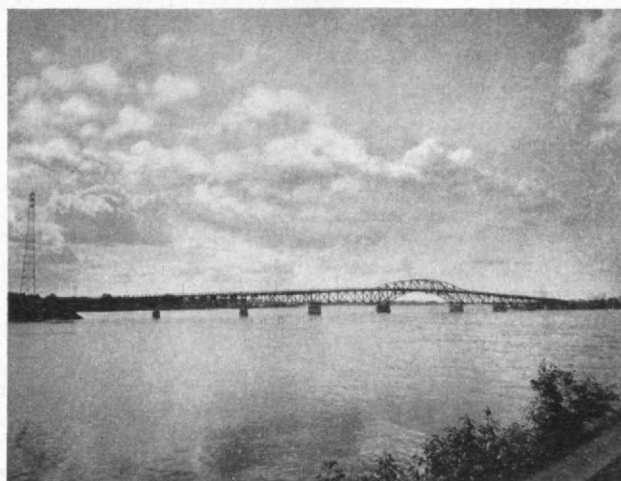
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VOL. 37, NO. 7

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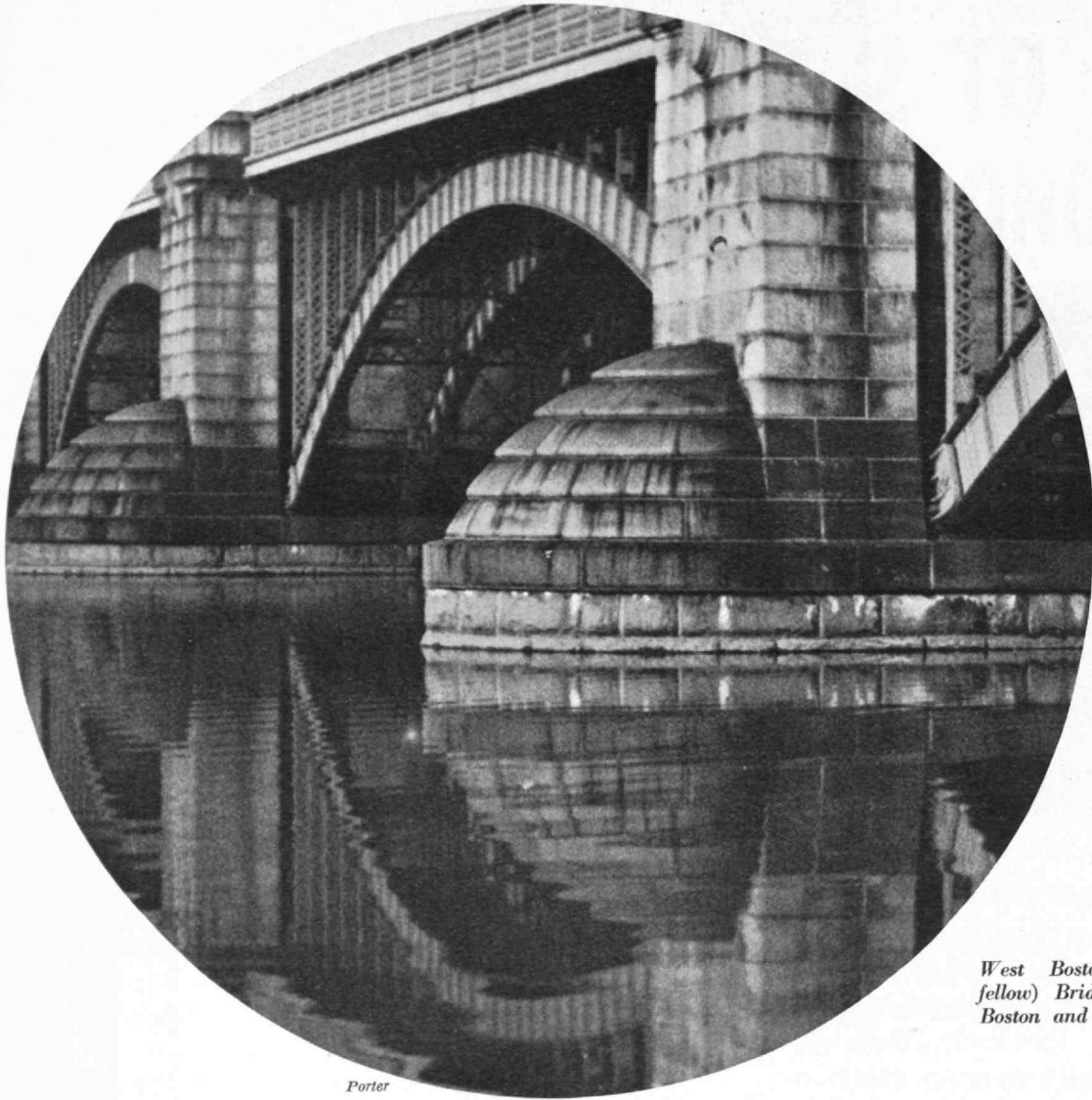
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West Boston (Longfellow) Bridge between Boston and Cambridge

Porter

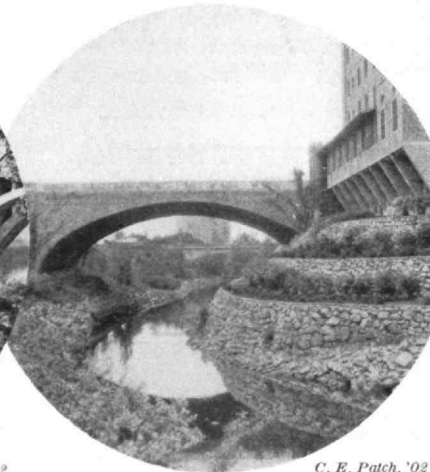
March of the Arches

Over the Mississippi at Minneapolis



C. E. Patch, '02

At Fergus Falls, Minnesota



C. E. Patch, '02

Near Framingham, Mass.



J. A. Seaverns, '84

THE TECHNOLOGY REVIEW

Vol. 37, No. 7



April, 1935

The Trend of Affairs

Notes and Observations

UNLESS international complications prevent, it seems possible that the many-times proposed tunnel from Spain to Africa may actually go into construction. According to present announced plans, working operations will begin in 1936. As long ago as 1894, conversations between France and Spain took place over the project, which finally was tabooed because Alfonso XIII feared Madrid might diminish in importance, since the connecting railroad would not touch that city.

Current revival of the project is due principally to the hard work of Lieutenant Colonel Jevenois, born a Belgian but now a Spanish citizen. Under his direction a special research commission has been working since 1927. This commission has spent nearly a half-million dollars in preliminary soundings and borings. As a result, they have concluded that the shortest route from Algeciras to Point Ciris (9 miles under 3,000 feet of water) will not be so cheap nor so feasible as the longer one from Tarifa to Point Altares (20 miles under 900 feet of water). These soundings were by no means made with ease, owing to the strong currents in the straits. Engineers have already determined that geological formations on both

sides of the tunnel are identical and offer no difficulty to construction. As their latest exploit, the Spanish engineers are now building a diving tank on caterpillars, capable of crawling on sea bottom at a depth of 1,200 feet, at a rate of a mile an hour. This machine will carry a powerful searchlight and, after dynamite has been exploded, it will be let down, the bottom explored, and specimens picked up.

Estimates indicate that the tunnel will cost about 50 million dollars and will be five years a-building. Complications arise from the fact that railway gauges of France are narrower than those of Spain and a brand new railroad track must therefore be built from the Pyrenees to Gibraltar, so that *de luxe* passengers may go to Morocco without changing cars.

Other complications would seem more serious, but have not been discussed—for example, the attitude of other nations to such a tunnel, which will be of primary value to France. Although Spain is known to have African ambitions, she cannot be taken seriously in the African New Deal. How Italy, with her newly awakened aspirations for the Dark Continent, and England, with Gibraltar so close at hand, will regard the tunnel idea are certainly matters for consideration. The cynic about these great engineering projects may also ask

BAEDEKER

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Other items: *New and somewhat appalling equipment for the amateur cinematographer* (253); *Measuring the stretch of steel* (254).

Word or no word, England is much excited over the possibilities of television and is eagerly watching the trial broadcasts of the Baird System from Crystal Palace.

NO longer is it possible to say simply that all matter is composed of 92 elements. Physicists and chemists have demonstrated that many of the elements have twins (isotopes) composed of the same stuff but possessing different masses. That noted isotope hunter, Professor F. W. Aston of the University of Cambridge, has announced the discovery of 20 additional varieties of the chemical elements, and his census of these new entities now shows that there is an average of three and a tenth isotopes for every chemical element! Heavy water, made of ordinary hydrogen's isotope, or heavier twin brother, is first in the procession of novel compounds that will flow from this multiplication of the elements. With so many new building blocks placed at his disposal it would seem that the work of the creative chemist has only begun.



Courtesy W.
S. Forbes, '93

Jack Frost excels in a one-man show. Frost patterns on window-panes photographed by Charles J. MacQuarrie

why the tunnel is needed for such a short crossing which modern transport planes can negotiate at the rate of at least two round trips an hour. The only possible value (tourist travel not being, or likely to be, heavy) would be for transport of munitions and guns. Is Spain ready, then, to play thus completely into the hands of Madelon? Quite likely this tunnel is just a dream of the indomitable Jevonois, but even then the idea is sufficiently spectacular to be regarded with sympathy by any engineer with a trace of romance in his make-up.

OUR British cousins overseas, nothing if not thorough and even a little "previous," are already worried about what to call the people who look at television broadcasts. A considerable correspondence is even now filling the editorial pages of the more dignified English press. The unimaginative word *lookers* is approved by the government, while the official wordsmith, Bernard Shaw, busy reading adverse reviews of his "Simpleton of the Unexpected Isles," refuses to be bothered, saying, "Go to the errand boys and ask them, not me."

A friend of ours, age four, is more resourceful. She suggests *peekers*.



IT is no news that fashions in sculpture change, but the American art merry-go-round has been revolving pretty violently these last few years. From the French fad for Daniel Chester French through the serene classicism of Lorado Taft and the Assyrian architectonics of Lee Lawrie, popular fancy has at the moment come to rest on the work of Carl Milles (sound Americans have, the President be praised, had no truckle with the obscenities of Epstein).

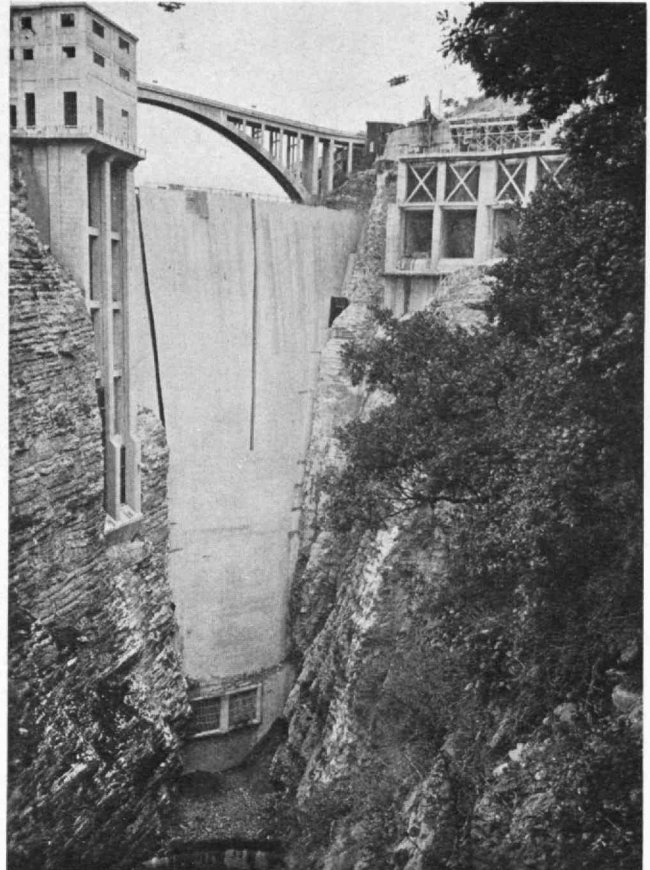
No admirer of Milles, we can state that unquestionably his sculpture has the colossal quality of Michelangelo; we can admit that the figures seem to rise from some sort of spume. We cannot, however, generate much steam over a figure (such as that in Milles' bronze Orpheus fountain for Stockholm) that resembles any number of macabre medieval statues of the Saviour, nor for a series of figures standing on the points of very uncomfortable leaves, in a balance that is by no means obvious. Egyptian sculptors left plenty of stone everywhere so nobody was under any apprehension that some piece of the decoration would fall. Sculpture has become more and more dynamic, to the point where it often seems to float into space.

After Milles there seems to be nothing more to do except to suspend the figures from balloons. And, although his metal sculpture (which, by the way, is unfair in that it takes advantage of the properties of metal while suggesting stone) does make possible less and less connected mass, we'll wager that some of those devotees of Orpheus come unfixed one day. Even if they don't, they will be pretty uncomfortable, teetering on the point of an acanthus leaf down through the Swedish centuries.

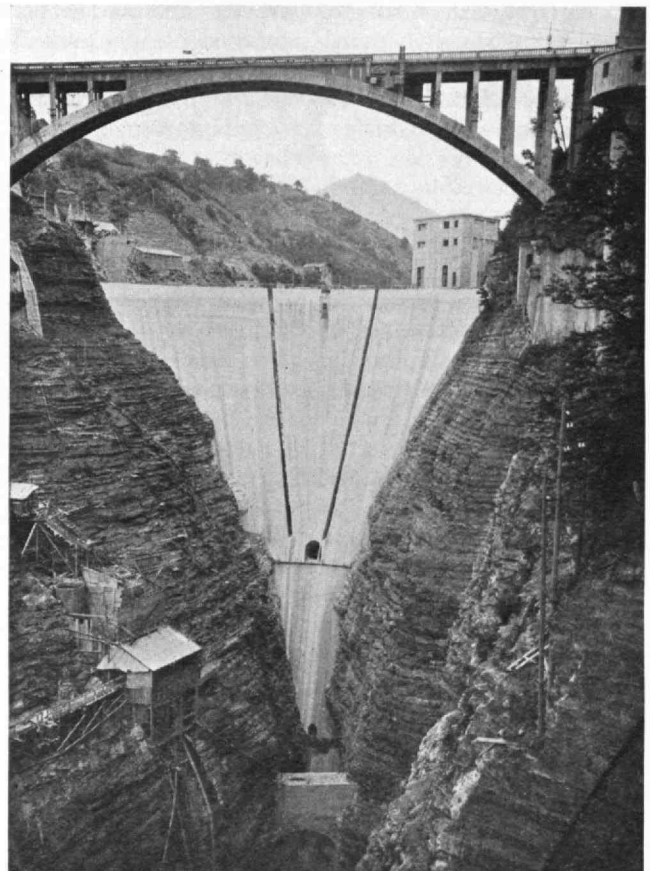
WHILE the *Macon* crashed in dramatic finale to the career of another of the rigid lighter-than-air crafts, the shades of the Brothers Montgolfier were being dragged forth from what most air-minded people must have regarded as their final resting place. These brothers, it will be remembered, were the gentlemen who electrified the residents of pre-revolutionary Paris with sustained flights above the earth in a hot-air bag. The dragger-forth is a Viennese, Rudolf Brunner by name, who feels that the Montgolfiers' contribution has been shamefully treated by the tide of aerial evolution. Brunner announces that he has corrected the chief defect of the old hot-air bag — rapid cooling of the lifting medium — by means of an oil burner warranted to keep the air in the bag hot. By means of regulating valves, the inventor can control the heat of the air and hence the rise and descent of the balloon. The amount of time in the air is purely a function of the amount of fuel that can be carried.

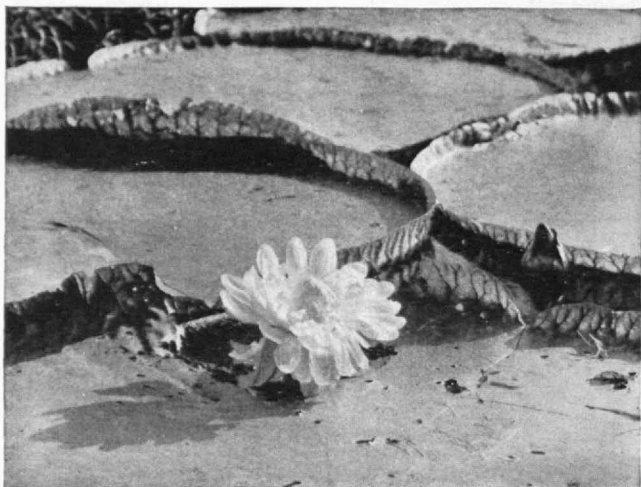
Recently at Eberswalde, Germany, Herr Brunner stayed aloft for over 30 minutes and reached a height of 1,500 feet, not a particularly convincing accomplishment. The cost, he says, converting present marks to present dollars, is \$2.16 a flight hour.

Little inventions like this, important or no, appeal to us, at least more than does the fantastic five-mile observation tower, which, if one set of journals can be believed, is even now being laid out on the drafting boards of Paris.



Courtesy Robert Miche
Upstream (above) and downstream (below) views of Le Sautet Dam, next to Boulder the highest in the world (446 feet). It is on the Drac River near Mens, France





William Lavarre from Gendreau

The lush beauty of Victoria lilies in British Guiana

New Fabrics

CLOTH and paper laminated with resinoid, a synthetic plastic, has been placed on the market by the Revolite Corporation. Raincoats in bright metallic finishes, hats, umbrellas, draperies, and surgical dressings are being made of this new flexible coated material.

¶The British Department of Scientific and Industrial Research has developed a new process for producing unshrinkable wool, yarn, and fabric, and fabric capable of withstanding the rigors of laundering. The same body also announces a new fabric, made of wool and rubber latex, especially suitable for motor-car upholstery.

¶In Lancashire, England, experiments are in progress looking toward the mixing of waste flax fiber and cotton for manufacture by special mechanical and chemical processes into a new type of fabric. These experiments include investigation of the use of linseed straw, a hitherto unused product of Canadian farms, in the new fabric.

Copper — Dust to Dust

A REPORT that two Chicago metallurgists have developed a process for reducing copper to a non-crystalline dust warrants comment. Amorphous copper produced by this method, it is claimed, may be incorporated with a special carrier to produce a liquid copper 98.3% pure.

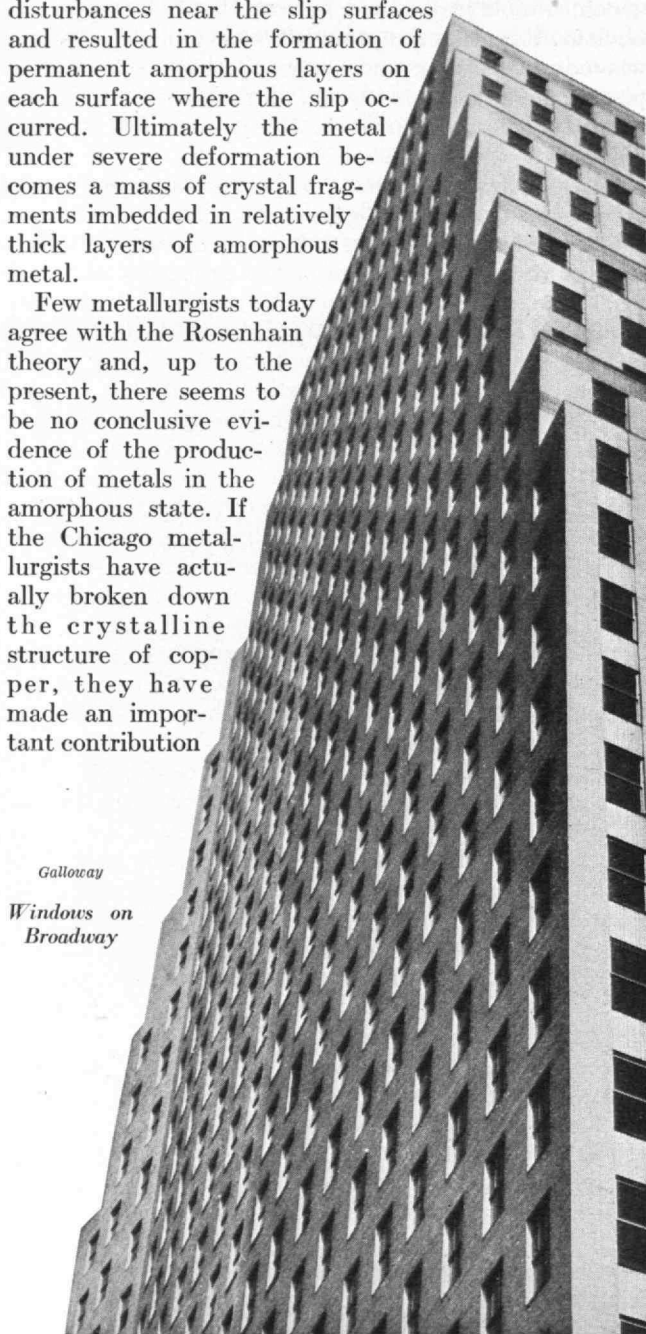
Copper reduced to a fine dust, which still retains its crystalline structure, is already widely used as a pigment in paints. The advantage claimed for the new type of copper dust is that its "shapeless" (amorphous) particles are finer than in the crystalline form and thus produce a more complete protective covering.

Metallurgists have long been interested in what have been described as amorphous layers in metals, and there is considerable disagreement on the changes in the crystal structure of metals produced by working them. The late Dr. Walter Rosenhain, who was Director of Metallurgy in the National Physical Laboratory of Great Britain, was the chief exponent of the theory that plastic deformation of metals produces permanent amorphous layers.

It was Dr. Rosenhain's belief that when metal undergoes plastic deformation the crystals are deformed in the same general sense as the mass of the metal. This change in the shape of the crystals, he suggested, is accomplished by a process of slip, or gliding, by which crystals slide over one another along certain planes. In this theory, such slippage occurs on a multitude of planes in each direction. As a result, there is disturbance of the crystalline arrangement of the molecules on or near the surfaces of the slip. If the disturbance has been slight, the molecules may be able to rearrange themselves in accordance with the crystalline system by which they were surrounded, and the complete crystalline character of the metal will then be unaffected by the deformation. It was Dr. Rosenhain's feeling, however, that severe deformation, including, for illustration, the bending of a single crystal upon itself, produced large molecular disturbances near the slip surfaces

and resulted in the formation of permanent amorphous layers on each surface where the slip occurred. Ultimately the metal under severe deformation becomes a mass of crystal fragments imbedded in relatively thick layers of amorphous metal.

Few metallurgists today agree with the Rosenhain theory and, up to the present, there seems to be no conclusive evidence of the production of metals in the amorphous state. If the Chicago metallurgists have actually broken down the crystalline structure of copper, they have made an important contribution



Galloway

*Windows on
Broadway*

to metallurgy. If, on the other hand, they have mistaken extremely fine crystal grains for amorphous particles, x-ray examination will clear up any doubt. For the moment, there appears to be no metallurgical test to prove the existence of the amorphous form in metals.

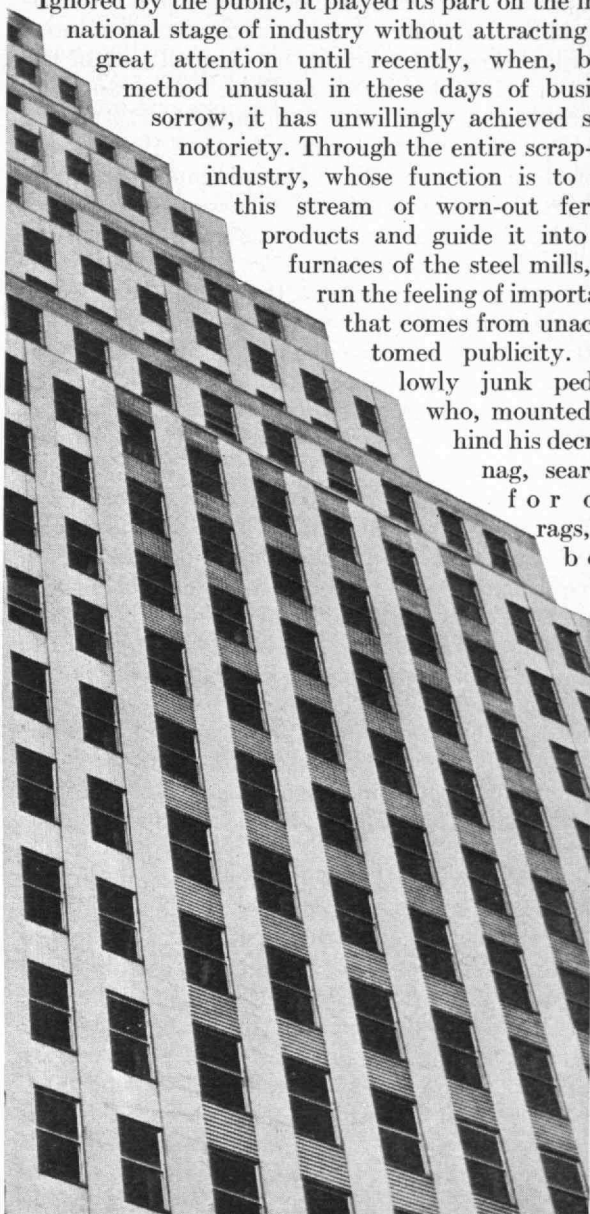
Scrap Moves to the East

By PAUL COHEN

THE comfortable obscurity of custom and indifference veils much that is unusual in industry and trade. Only the exceptional occurrence, the searchlight of governmental or newspaper investigation, discloses to the layman an activity surprising in its scope, size, and importance. Three London firms fail after an attempt to corner the world's white-pepper market, and pepper makes the front page, while readers wonder at the magnitude of the sums involved.

Stated here is but one aspect of a virtually unknown, but major industry, the partial story of a river of steel whose volume is measured by the millions of tons.

Ignored by the public, it played its part on the international stage of industry without attracting any great attention until recently, when, by a method unusual in these days of business sorrow, it has unwillingly achieved some notoriety. Through the entire scrap-iron industry, whose function is to feed this stream of worn-out ferrous products and guide it into the furnaces of the steel mills, has run the feeling of importance that comes from unaccustomed publicity. The lowly junk peddler who, mounted behind his decrepit nag, searches for old rags, old b o t -



F. S. Lincoln, '22

Stone and steel. Lift bridge over the Thames, London

tles, old iron, has been more elated than frightened by a Federal survey and the threat of Congressional restriction. The small dealers have been pleased by an unwonted briskness of trade. Only the big dealers and the brokers have appeared to protest against what they call unnecessary interference. But why all the ado?

In the past year, says the Department of Commerce, some 1,835,554 tons of scrap iron and steel (gross tons of 2240 pounds) have left American ports, a ten-fold increase over 1932, and over 35 times the amount exported in 1931. Amid the wails of the jingoists and the hallelujahs of dealers, scrap asserts itself as an international commodity.

No unanimous expressions of joy have greeted this windfall to an almost paralyzed industry, this symptom of better world conditions. A paradox has arisen where the same industry and government that anxiously searches for new markets views with indecision a spectacular rise in one type of exports. Although heavy foreign demand has raised the price of scrap some \$2.00 a ton over the record lows of 1932 and 1933, and has saved many dealers from bankruptcy—the tremendous reserves and low activity of the domestic steel mills having almost closed this market—opponents of exportation claim that if the outward flow of scrap continues at its present rate, 2,300,000 tons in two years, the United States will be drained dry of a valuable military reserve; domestic steel mills will find it difficult to secure their supplies. Japan bought over 1,160,000 tons in 1934, about 63% of the total, while Italy, Great Britain, and Poland took the bulk of the remainder. How much is being converted into war materials?

At least 65%, say American alarmists, an estimate conceded to be impossible by steel men. Only 15% of the tonnage goes into armaments, says Japan, and scrap iron dealers, or rather those near salt water, concur heartily. "It is doubtful if 10% finds its way into war materials," says Michael V. Bonomo of the Sciaivone-Bonomo Corporation, one of the larger eastern exporters. He points out that foreign steel mills are producing large quantities of construction products.

Opposition has already gone further than words. At the last session of Congress a bill was passed prohibiting the shipment of tin-bearing scrap. It was vetoed by



Bourke-White

Pyramids of
pistons

President Roosevelt, but the new session may see it again introduced. Representative Florence Kahn of California promises to offer a bill banning the sale, to the Japanese, of old ships for scrapping.

The latter action arises from the fact that Japanese interests have recently bought some two score obsolete American merchant ships. Most of them were broken up here, but a few moved to Japan under the flag of Nippon, and with a Japanese master on the bridge. But Japan can hardly compare with Henry Ford, who, some years ago, bought 199 decommissioned vessels of the American World War fleet for \$1,600,000. From Philadelphia he sailed them to his River Rouge plant where they disappeared into the capacious maws of his furnaces. Neither of the threatened bills, if made law, would seriously inconvenience dealers, for they do not profit from the breaking up of ships, and tin-bearing scrap made but a small fraction (6%) of the total scrap shipments for the year. As can be gathered from the following newspaper item, however, tin-plate shipments, although small in volume, have plenty of international significance: "Japanese competition has increased the difficulties of Germany in securing suitable supplies of tin-plate scrap from foreign sources." About 40,000 tons, the bulk of American shipments in 1934, went to Japan.

Tin, essential for industry and war, is not produced in the United States, although small amounts are obtainable in Alaska. Its principal use is as a coating for sheet iron and steel, as is testified by that national emblem, the tin can.

The claim of the scrap-iron dealers is that opposition to exportation arises mostly from the steel mills which fear the rise in price made possible by foreign buying. They would prefer to supply the domestic market, say the dealers, but with that market almost comatose, and with their businesses in the red, they could not but welcome foreign demand.

But not all dealers sing the same song. When a resolution demanding opposition to all possible legislation against exportation was submitted to the 1935

convention of the Institute of Scrap Iron and Steel, the bitter and indecisive battle which followed almost disrupted the meeting. Dealers in the interior have failed to profit from foreign shipments, as freight rates prevented them from getting reasonable prices at salt-water ports, and they are, therefore, a trifle shy in promising to fight objectionable legislation. In these statistics lies the explanation. Four tons of scrap for export came from Arizona; 498,224 tons, or 25% of the total shipments, left New York. A ton of steel can be shipped to Japan from New York for \$4.00 (9,000 miles); a ton of steel can be shipped from Pittsburgh to New York for \$5.30 (350 miles). That is why only dealers on the East, Gulf, and Pacific coasts, some 60% of the total, were in a position to patronize the new market.

Nor is the fear that a valuable military and industrial reserve is being drained dry based on indisputable evidence. In the United States some 750,000,000 tons of steel products are in use, a huge reservoir, the component parts of which wear out and are renewed in cycles varying from about seven years, in the case of automobiles, to 40 years or more, in the case of buildings, bridges, and other relatively permanent structures. Rust will irretrievably destroy but a small part of the total, the remainder being available for scrap. The estimates of rust losses range from the 16 to 17% stated by Dr. Fr. Frowein, at a recent meeting of the Association of German Chemists, to the minimum of 1% set by an article in the *Journal of Commerce*. The reader may make his own guess. In any case, if domestic steel mills, working at about 40% of capacity, can absorb 16,000,000 tons of scrap in 1934, they need not seriously fear competition for scrap with Japan, which with her industry at 100% of capacity, took only 1,160,000 in the same year. And similarly, the 184,299 tons of tin-plate scrap exported in 1934 are not a dangerous proportion of the 1,570,830 gross tons produced by the United States in the same year.

But why should eastern and European nations want American scrap? Fundamentally there are the cold, physical facts that the preparation of one ton of pig iron requires not only 4,000 pounds of iron ore, but also 2,200 pounds of coal or coke, 1,200 pounds of limestone, and 9,000 pounds of oxygen. The last item is free for the taking in all countries, of course, but nations are not so happily equipped in regard to the other materials. Supplies of coal and iron ore are practically nil in Italy; Poland can export coal but lacks iron ore; and the situation is not much better in Japan, where iron ore of not too good quality is obtainable, but natural fuel supplies are lacking.

Aside from the question of raw materials, the use of scrap permits certain economies of pig iron and fuel which cannot be attained without it. Thus it happens that, according to *Iron Age*, basic pig iron costs \$15 a ton in Japan, \$17 a ton in England, \$25 a ton in Poland, and as much as \$30 a ton in Italy, while steel scrap can be delivered at Japanese furnaces for \$14 a ton. Italy has obtained scrap here at as low as \$7.15 a ton.

The tendency in the past decade has been for exports of finished steel to drop and exports of scrap to rise, a natural course when the habits of the importing countries are examined. Since the War there has been a

universal striving toward self-sufficiency. Countries lacking essential industries have tried to repair that deficiency, as is borne out by little items which regularly appear in trade and newspapers, such as the following: "Youngstown, Ohio — The McKay Machine Company . . . is operating its shop on a 24-hour basis with more than 100 machinists occupied. . . . Equipment for steel-sheet mills in Japan was shipped today. A similar shipment went recently to the Tata Iron Works of India."

Other and more powerful factors have operated to give Japanese industry its present activity. A recent report by M. S. Farley, research associate of the American Council, Institute of Pacific Relations, indicates that production of iron and steel in Japan has practically doubled in the last four years, while world production rose 17%. The depreciation of the yen enabled Japan to maintain her export market, while the rapid industrialization of her new satellite, Manchukuo, to the tune of 430,000,000 yen since 1931, has called for oil refineries, railways, mines, power plants, all contributing to keep the steel mills at 100% of capacity.

It cannot be proved that all scrap exported to foreign countries is being used in any but peaceful directions. To a greater extent than ever before, the tools of peace are the weapons of war. Oil from a Manchukuo refinery may light the lamps of China or pour in black smoke from the funnels of a destroyer. Textile machines constructed of American cast iron may produce calico for South Sea islanders or silk for parachutes. Battle-ships and diaper pins are produced by essentially the same processes and equipment.

Congressional attempts to hamper the foreign use of American raw materials will irritate, rather than hinder, nations with which we are at peace. The United States, with her huge natural resources, has long been a supplier of raw materials to less fortunate countries, and it must be remembered that scrap is but a concentrated form of iron ore, coal, and limestone, the exportation of any one of which would arouse no protest. The fact that cotton, a war material, is an important American export product, is viewed with equanimity by North and South alike. The authorities should carefully avoid the proverbial practice of cutting off their noses in order to spite their faces.

But the problem may soon solve itself. Dealers are not particularly keen on selling to the export market, and not from patriotism either. Let us assume that a representative of the Mitsui interests meets a broker in New York who agrees to deliver 10,000 tons of No. 1 heavy melting steel at a specific dock for \$10.50 per gross ton, in 30 days. He knows that on the day the contract is signed, his differential, or commission, is 50¢ a ton. But before he can deliver the material, both the dollar and the yen perform a few gyrations, the price of scrap goes up with the suddenness that is characteristic of this sensitive commodity, and his differential is reduced to 5¢ a ton. Whereupon he immediately starts hunting for a cheap supply of sackcloth and ashes. It is apparent, then, why a further rise in the activity of American steel mills may quickly reduce scrap to its former obscure position. But for the moment the lowly junk peddler basks in the light of international attention.

Amateur Sound

LONG-SUFFERING guests who have been called upon time after time to watch the badly photographed antics of their host's little Junior as recorded on home-movie equipment will not view with enthusiasm the announcement of an American company that it is now prepared to furnish sound-movie equipment for the amateur. Despite the simplicity of this equipment and its relatively low cost as compared to the commercial outfits, the device would seem, offhand, to be beyond the pocketbooks and certainly beyond the artistic and technical abilities of the average consumer.

The machine is primarily adapted to have the photographer speak a sort of running comment on what he is photographing into a mouthpiece attached to the back of the camera but separate microphone and amplifying attachments are provided to permit outdoor sound effects to be obtained. The first device has real advantages in many semi-professional activities. Thus in the Coast Guard service an officer observing assistance at sea is able to record his impressions at the time of their occurrence instead of relying on subsequent blurred memory. Investigators for the Soil Erosion Service are able to perform similar stunts to advantage.

The trouble with the average amateur movie-man is of course, first, that he either does not know enough or cannot afford to use sufficient film for any given scene so that the impression is disjointed to say the least. Secondly, even when he takes long scenes he fails to realize that to recreate nature he must actually dramatize his event; in other words, he must plan a sequence that will convey, quickly, impressions and sensations that in normal life take much longer. Imagine, then, his predicament when he must also filter out sounds, plan sound effects to take place when they should, and be confronted with all the technics of sound manipulation, in addition to the serious complexities now afforded by shutter speeds, emulsions, colors, filtrations, light, and shade. That the device may pique the curiosity of a few wealthy playboys is inevitable. That ultimately home movies in color

Bourke-White

*Inspecting
pistons in the
Chrysler plant*





© Canadian Aircraves

Silverado Mine, spectacularly perched on the flank of a mountain, near Stewart, B. C.

and sound will be common is perhaps also inevitable. But for the moment it may be seriously hoped that most of us will come in contact with the product of this wedding of two sciences only under proper auspices — in authentic reportorial work and in the laboratory, where, as in the department of child psychology at Cornell, the machine may be put at once to profitable, nay indispensable, use.

One-Hundred-Millionth of an Inch

FOR every advance on the macrocosmic front, there is another, often less conspicuous, on the microcosmic. Since most of the latter are in the field of biological research, they perhaps obtain, on the whole, less publicity than those dealing with inter-stellar distances. The huge Mount Wilson telescope is certainly better copy than the delicate stretching

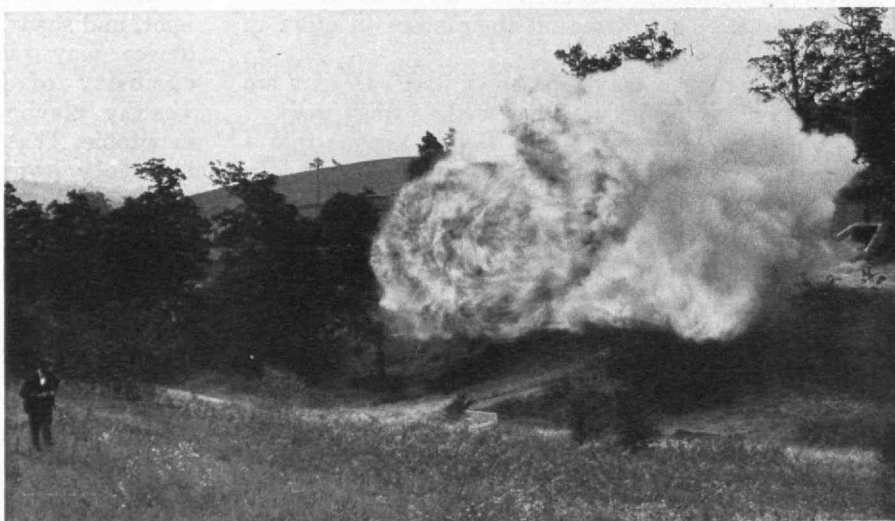
machine developed by Dr. A. Nadai, Westinghouse research physicist and professor at the University of Pittsburgh. The telescope, as a matter of fact, may have deeper philosophical implications in what it reveals to wondering man, but for the present the Nadai apparatus may be of considerably more importance to individual humans.

In brief, the new testing machinery has been developed to make it possible to measure minute stretches in steel. As a specific example, it has long been known that the metal blades of a turbine stretch infinitesimally and continually as they rotate at high speed at the temperature of super-heated steam. In high-speed turbines, clearances of much over one-thousandth of an inch are not permissible. If the blades stretch above the clearance, they rub the casing, generate heat, and may cause the destruction of the turbine. Now since the stretch that is occurring is continual and progressive, and the life of a turbine is a number of years, it is obvious that the stretch to be expected in any time reasonably allotable to observation will be extremely small. The new apparatus, it is said, will even now measure a stretch of one-hundred-millionth of an inch, and workers in Pittsburgh hope to reduce the measurable differential to three-billionths of an inch. On the basis of a turbine lasting 10 years, this would permit the necessary observation to be made in 15 minutes. If that isn't microcosmic, what is it?

Another Sun-Driven Motor

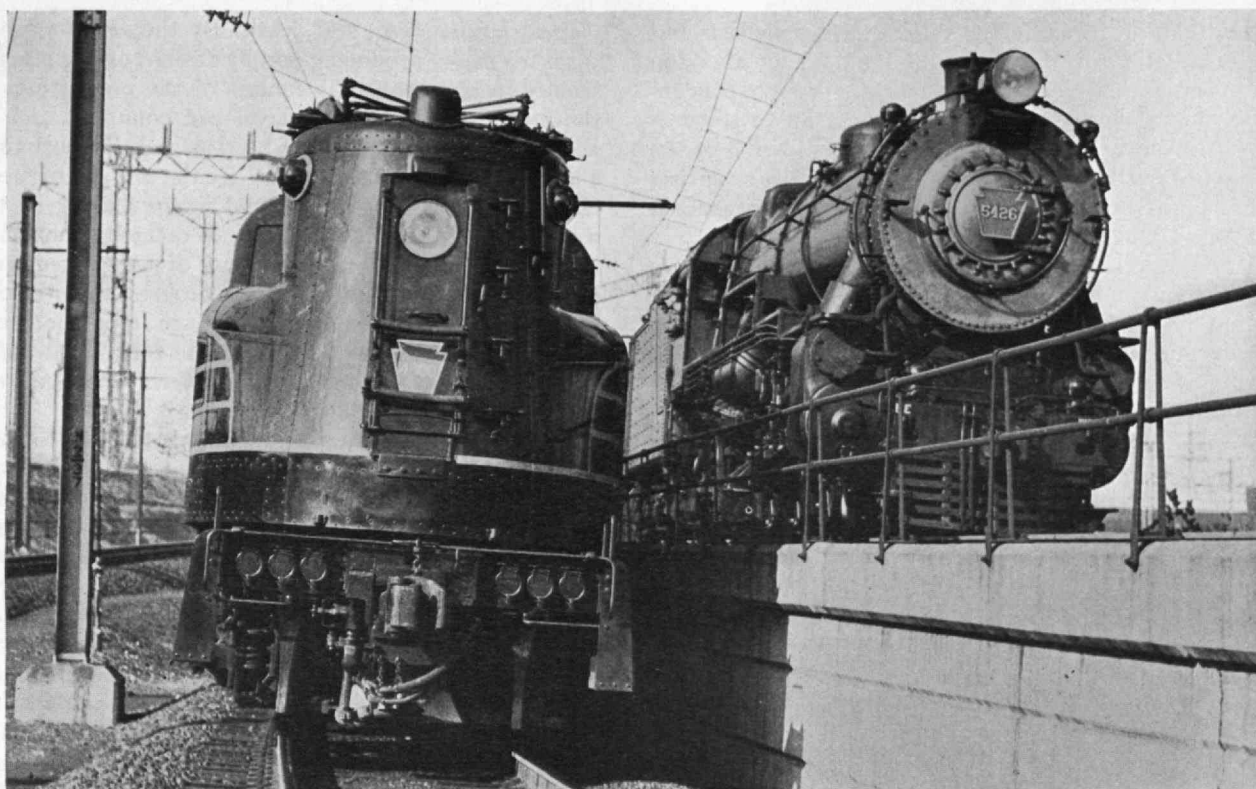
SUFFICIENT electric energy to operate an electric motor can be obtained directly from sunlight with a new photo-electric cell, far more sensitive than usual ones of its type, that has been produced in the General Electric Research Laboratory at Schenectady. Even the light from an incandescent lamp, falling on such cells, is sufficient to operate the motor.

Four of the cells, connected together, operate a motor that is rated at four ten-millionths of a horse power. The cells are of the selenium type, although the selenium is surfaced with a thin film of platinum which increases its sensitivity to light.



Science Service

The U. S. Bureau of Mines as a part of its safety studies demonstrates the explosive power of methane. The flame roars out of the test tunnel in great whirls like the blast of a cannon



Baldwin Locomotives

THE INEVITABLE PROGRESS OF APPLIED SCIENCE
*One of the new type Pennsylvania Railroad electrics, operating between
 New York and Washington, standing beside a powerful steam locomotive*

Limitations of Science

The Holiday Fallacy and a Response to the Suggestion That Scientists Become Sociologists

BY NORBERT WIENER

OUR generation has seen muck-raking develop into debunking; and debunking into a querulous attack on all existing standards. It was a foregone conclusion that after the bankers and business men had had their day in court, a summons would come in due order to the scientist to prove his right to existence. At the present day, when the mechanical age is bearing the burden of many charges against it as the cause of our present unemployment and economic chaos, an easy transition has led to the now trite suggestion from many quarters for a holiday in science. There is danger in these attacks, but it does not reach its full degree of acuteness until we find conscience-stricken, elder statesmen among our scholars beating their breasts and crying out, "*Mea maxima culpa.*" Unfortunately, their conscience is not confined to themselves in its effects on the world. Their accusations strike their colleagues and the entire fabric of science even more than their own individual personalities.

In the journal, *Science*, for February 8 of this year, there appears an article entitled "The Humanizing of

Science," by Dr. Harvey Cushing. This article represents his presidential address at Washington before the History of Science Society, December 28, 1934. It is a very human, very cultured, very moderate article on the relation of science to civilization in its larger phases and contains much with which the present author is delighted to agree. While it is not violently anti-scientific in character, it raises the issue of the responsibility of modern science in the social depression of the present day and the related questions as to the desirability of a holiday in science and of the diversion of a large part of the energy now spent in works of natural science to sociological fields. It follows the familiar lines that the good done socially by science is at least in part canceled by the unemployment which applied science has created; that inventions have a tremendously unstabilizing power and are likely to get into the hands of individuals whose uses of them may not be entirely to the social good. It asserts that engineering and science should take over something of the ethical code of medical science in making their inventions available to the public at large

rather than to individual exploiters; that "scientists and engineers of the country should temporarily abandon the investigations dear to their hearts in order to concentrate on problems the most difficult of all to solve — those that have to do with the social well-being of the community at large"; and that thereafter the scientists may come into their own in a perfectly organized community.

While, as I have said, the statements of Dr. Cushing are moderate in a high degree, there is grave danger that he may be used as a witness for the prosecution against science and may be quoted in support of a sentence to science of enforced idleness through a period of years or decades. The great weight of Dr. Cushing's name makes this especially dangerous. I should like to discuss his charges and suggestions in detail. Dr. Cushing admits that it is extremely doubtful whether science is in any way to blame for the economic troubles in which the world has been wallowing. "One might," he says, "with equal reason lay unemployment and the increasing need of insurance against old age at the door of medicine for keeping more people alive than can be employed." This statement of Dr. Cushing's is really only a part of what one might say of the unstabilizing rôle of modern medicine.

In the old days and in less advanced countries at the present time, the great evils of society have been those personified in the four horsemen of Revelations —

plague, famine, war, and death. By the aid of agricultural science in producing and by the aid of engineering science in distributing, a famine of the proportions of those common in the less-developed countries such as India, Russia, and China has been made little more than a legend in western civilization. By the services of medicine, both in curing disease and in preventing it, the word "plague" awakes in our minds rather the notion of a semi-mythical bogey than that of an immediately present terror. We have made less progress in outlawing war; death is still king, but we manage to postpone our acquaintance with the old gentleman for a good many years. All these factors have completely changed the face of society.

In the Middle Ages, peasants had many evils to complain of and there was much discontent and revolt among them. Then the black death came and wiped out a large part of the population of Europe. From that time on the condition of the peasant began to improve. Those who survived were in such demand to till the depopulated soil that their employers or owners could not deal too harshly with them. Unemployment had ceased to exist. In other periods of history, wars and famine have done similar service. I do not by any means wish to imply that plague or war is preferable to unemployment, but I most emphatically wish to assert that unemployment is prevalent owing to the absence of other destructive forces.

(Continued on page 268)

Leading to the Moffat Tunnel, the new Dotsero Cut-off of the Denver and Rio Grande Western passes the Pagodas in Red Canyon

Baldwin Locomotives



Mark Hopkins: New Style

What Qualities Should a Teacher of Science and Engineering Possess?

By SAMUEL C. PRESCOTT

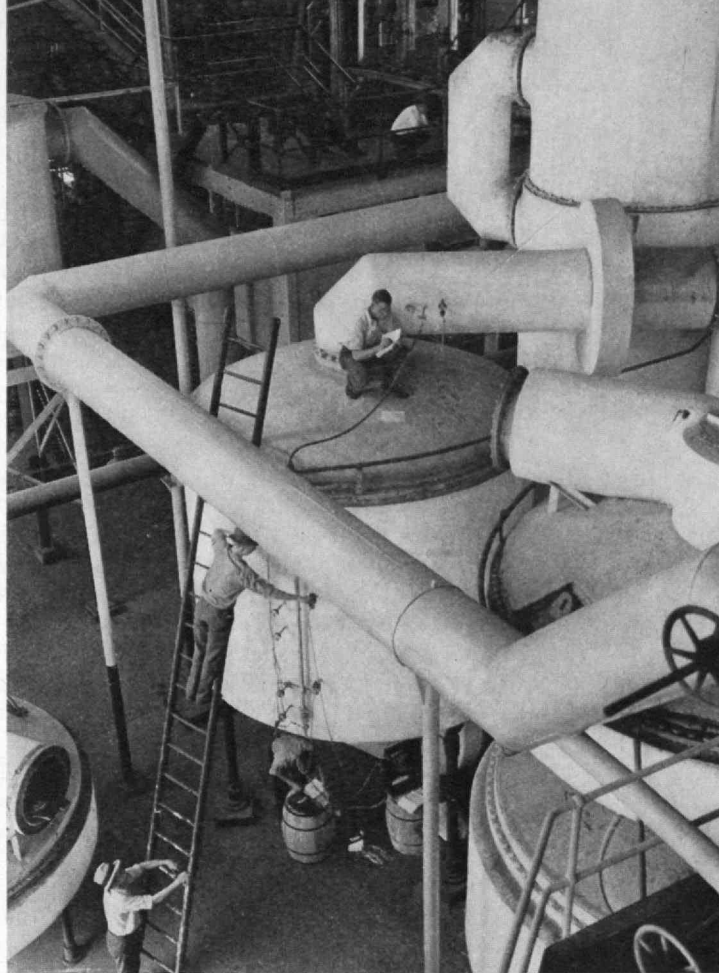
PROGRESS of research at Technology, as well as at various other educational institutions, has been the theme for much general publicity and for many special articles during the past few years. The record of M.I.T. has been a gratifying one, and it should awaken and increase the pride of every alumnus that so much splendid work in extending the frontiers of knowledge is being done within these walls. It may be equally important and interesting to know that much constructive thought is also being given to the other and even greater side of Technology's work, that of actual instruction, and especially of undergraduate teaching, since this is the aspect of our work that to a still larger degree engages the energy and constant activity of the staff members. Indeed, good teaching must be regarded as the prime function of the Institute if its graduates are to hold high rank among the educated as well as the technically efficient men of the present era.

With 80% of our student body in the undergraduate group, and the certainty that fully nine-tenths of these will take their places in professional life or in business and engineering enterprises without further formal or directed instruction, the complex question of what to teach, how to teach, and by whom to have instruction given, offers a research problem of the highest importance which increases in gravity with the changing years and the advances in the fields of science. While the significance of this problem has never been underestimated by the faculty, it is probable that since the early days of the Institute it has never received more concentrated or constructive attention than at the present time. Departments are weighing their professional schedules of study. A faculty committee on the curricula of the third and fourth years is just presenting a carefully considered report. An earlier committee gave long and discriminating attention to the program of the first two years. Both of these committees stress the necessity for emphasis on fundamental principles, on the cultivation of ability to express ideas with clearness and force, and on the extension of general studies that may contribute to a breadth of vision that will aid the student in his human relations and in later professional life.

Obviously, no mere arrangement or sequence of subjects, however logical, can of itself be effective in producing *en masse* these desired results; this can only be done when each new group in the student body is subjected to that *guidance in learning* which is the function of the successful teacher, and when the teacher studies the needs and the reactions of his students as men. It is clear, therefore, that the quality of intellectual and personal leadership, not merely of the rare teacher, but of the teaching staff as a whole, is a matter of direct and constant concern.

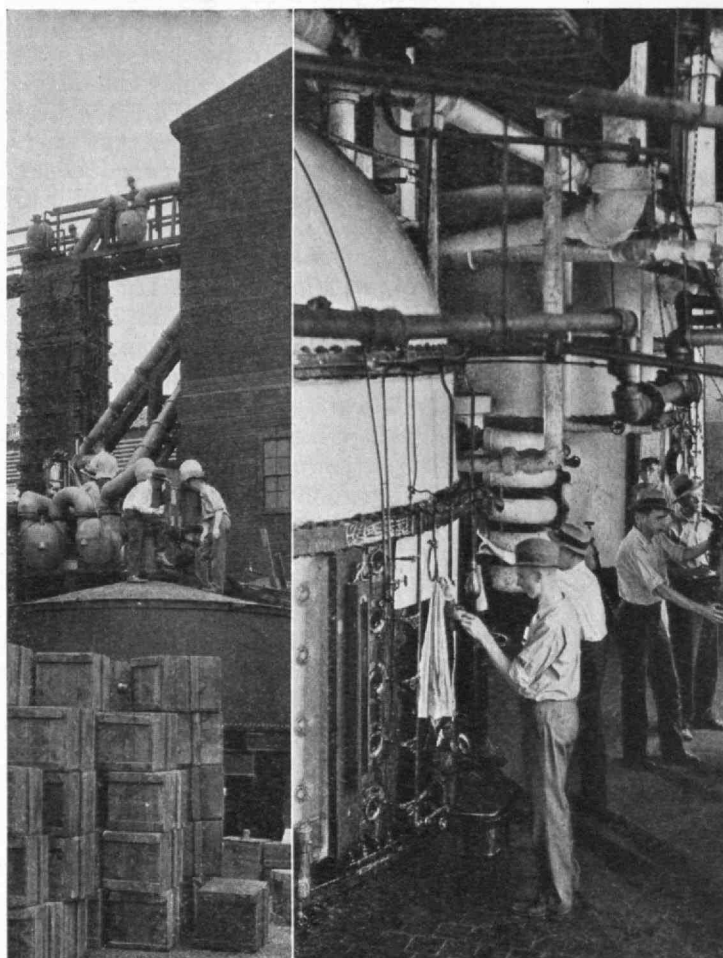
What are the qualifications of the teachers to whom should be assigned the problems of instruction in the first and second years, and in those later courses dealing with broad concepts introductory to specialized professional study, but which the student is seriously approaching for the first time? The question is rhetorical, but it is one which commands thought. The ideas expressed hereafter may offer some suggestions but probably will not give a complete and satisfying answer.

Bunyan observed that "nothing teaches like experience," and Emerson expressed the same thought when he stated, "The years teach much which the days never know." After two score years of



Above, and left below: *Uniting theory and practice. Students in the Chemical Engineering Practice School of M.I.T. become familiar with the operations involved in the manufacture of heavy chemicals at Merrimac Chemical Company.*

Below: *At the Revere Sugar Refinery prospective chemical engineers study large-scale problems in filtering solids from liquids and the removal of color from ash by charcoal filtration, drying, crystallizing and evaporation, flow of fluids, and flow of heat.*



teaching experience, from the observation of numerous men known by reputation as "good teachers," and with the vivid recollections of the personalities and qualifications of a few outstanding instructors under whose influence the writer was fortunate enough to come in student days, he has set down in series, but not necessarily in order of importance, those characteristics that now seem most desirable for the successful teacher who seeks to guide the youthful student about to embark on a career in science or engineering. The attributes here mentioned cannot in all instances be quantitatively evaluated or given a numerical rating. They cannot always be discovered by formal examination. Many are intangible or elusive qualities — recognizable or sensed, yet difficult to define sharply — which are in part innate in the individual and in part developed as a result of self-discipline and experience.

It is my conviction that any large staff in a technical school or the science division of a college or university will be made up of three intergrading types of individuals. At one end is a group of men who are, essentially, highly successful professional *teachers*, who recognize that their full-time business is to instruct and train, with all that these words connote, and who find in this calling their highest satisfactions. They study not only the subject matter but the problems of presentation with acuity — with what may be called the research spirit. Most of these eventually find it relatively easy to establish direct contact with the student's mind, and can stimulate his interest, because they possess or have discovered and cultivated a vision of their occupation and the art of "understanding." Probably an unusual teacher has this art to a considerable degree at the outset, as a part of his natural endowments. These are generally men who fully appreciate and often use the results of laboratory research but are not eminent in doing it. They do not blaze new trails; they connect those already cleared with the surrounding world. Their power lies in their gifts of personality, exposition, and salesmanship — in the power of conviction they possess. They are the Jowetts and Mark Hopkinses, the Sedgwicks and Wendells, of the institutional scene.

At the other end of the series is another small group whose major abilities lie in the pursuit of new knowledge. To them, the ordinary type of formal instruction may be a bore. Research is their absorbing interest and, consciously or not, they regard it as the greatest end and highest aim of scholastic life. Like cloistered students of old, they are what may be called the pure research men, working intensively, but generally alone, perhaps with a few associates or eager graduate students. They can stimulate and direct the advanced men with great success, perhaps largely because of personal and temperamental relationship and unity of interest, but in general find it difficult to descend from the heights of the theoretical and complex realm of thought, which is their intellectual life and chief joy, to that lower level of slow and patient exposition of first principles with its numerous iterations which is the duty of the elementary teacher. In these generalizations, it must not be intimated that there are not occasional teachers and research men who, happily, possess the endowments which make it possible to be outstanding in both fields.

Between these extremes stands the great body of teachers — instructors and professors — who compose the major portion of a teaching staff. From this group now and then one emerges to become a member of the more specialized end groups, as maturity, unusual opportunity, and experience influence his career. Most of the exceptional teachers probably originate here, as do some first-class research men, although possibly the exceptional research men do to a less degree. The middle group is equally devoted to duty, equally hard-working, less temperamental, and willingly carries more than its per capita share of the academic load. Possibly it is a group with broader and more varied but less deep interests than the research group. Its members may have more general influence but less specialized leadership. As the largest division, it is the group which establishes the character of the teaching corps and the teaching standards. It is the group which makes the first great impression on the hundreds of new students, and on the undergraduate body as a whole during the four years of study. It is the one most commonly receiving new recruits, and therefore one to which the appointments should be most carefully scrutinized.

In an institution where more than 75% of our efforts are in undergraduate instruction, we may reasonably emphasize teaching skill over research ability for the group *as a whole*, otherwise we may not be meeting our obligations to the hundreds of students who come to us for the undergraduate courses, and of whom only a small portion will go on to graduate study.

At the same time it is important to recognize that research, whether in pure science or in its industrial and commercial applications, reacts to very great advantage on teaching skill and breadth of technical knowledge in professional fields. Industrial research, dealing with the practical problems of engineering and applied science, often vitalizes teaching and supplies the concrete illustrations to fix important principles in the student's mind. While demanding teaching skill, we may perhaps properly insist that the *majority* of our staff should also have a genuine interest in some kind of special problems involving the sciences with which they deal. There are problems in education as well as in industry and these demand the spirit of research and ability to do straightforward thinking and to conduct controlled educational processes. Thus there is a very important place for the men who are expert in imparting instruction, and who are constructive in the development of teaching methods and teaching skill.

It goes without saying that no man regarding whom there is a question of personal integrity or basically honorable character should be appointed to a staff. This is an essential quality, though something beyond honesty is necessary for a virile and effective staff.

Qualities contributing to success in teaching

1. Adequate knowledge of the subject
 - a. Ability to present facts clearly and simply
 - b. Ability to marshal facts logically and thus derive hypotheses and theories
 - c. Ability to arrive at and clearly establish and impart *principles*
 - d. Ability to illustrate (Concluded on page 274)

The Coldest Cold

Some Engineering Implications of Low-Temperature Research

BY ROBERT D. POTTER

IN 1911 the then new eleventh edition of the "Encyclopædia Britannica" was just coming off the presses. Author of its chapter on the liquefaction of gases and low-temperature research was Sir James Dewar, inventor of the Dewar flask, which has since become known as the thermos bottle and by a variety of other trade names.

Said Sir James, "Though Ultima Thule may continue to mock the physicist's efforts, he will long find ample scope for his energies in the investigation of the properties of matter at the temperatures placed at his command by liquid air and liquid and solid hydrogen. Indeed, great as is the sentimental interest attached to the liquefaction of these refractory gases, the importance of the achievement lies rather in the fact that it opens out new fields of research and enormously widens the horizon of physical science."

Sir James turned out to be a better prophet than most of his contemporaries believed. While he was writing the above words, the Dutch scientist Kamerlingh Onnes, just across the North Sea at Leyden University, was adding helium to the gases which could be liquefied. And, therewith, science entered the region of low temperatures through which it is still struggling; struggling, one must hurry to add, not only to reach lower and lower temperatures but also to interpret what these low-temperature experiments have revealed.

Take, for example, the matter of electrical conductivity as one gradually lowers the temperature of a metal conductor. Of this Professor Dewar said in his same Britannica article, "With . . . temperatures attainable with liquid hydrogen the increase of conductivity became less for each decrease of temperature, until a point was reached where the curves bent sharply round [flattened out] and any further diminution of resistance became very small; that is, the conductivity remained finite."

Sir James was correct as far as he went. Unfortunately for those purchasers of the Britannica interested in low-temperature research, Kamerlingh Onnes' paper on the behavior of mercury frozen in his new liquid helium was still some months from publication. Onnes' experiments started with a volume of mercury whose resistance in the liquid state at zero degrees centigrade was 172.7 ohms. As the temperature was lowered to mercury's freezing point, its resistance was 39.7 ohms. Continuing

to cool the solid mercury steadily with liquid air, liquid hydrogen, and, finally, liquid helium, Onnes found its resistance, at only 4.3 degrees above absolute zero, had fallen to .084 ohms; about one two-thousandth of solid mercury's resistance at zero degrees centigrade.

Still cooling the frozen thread of mercury, the temperature fell another 1.3 degrees, and the resistance of the mercury dropped from .084 ohms to 3 times 10^{-6} ohms,

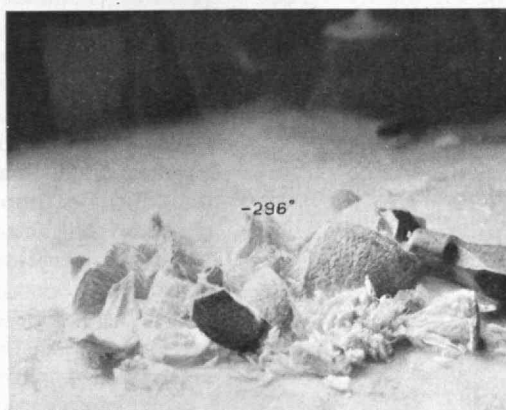
which is one ten-millionth of the value it would have at zero degrees centigrade. Further efforts to lower the resistance by decreases in temperature had no effect. The resistance had hit rock bottom and the now famous phenomenon of super-conductivity had been discovered. Thus, before the ink was hardly dry on his Britannica article, Sir James Dewar had become a very good prophet indeed!

Ever since Michael Faraday, with his great versatility in research, first liquefied chlorine, carbon dioxide, and nitrous oxide in 1823, and reached the record, for his day and age, of minus 90

degrees centigrade, the attainment of low temperatures has been hard work. The demonstration and measurement of super-conductivity is still more difficult.

More and more, cryogenic research became a problem of producing liquid air, oxygen, nitrogen, hydrogen, and, finally, helium on a sufficiently large scale. All these gases served the function of doing this: they were used to lower the temperature of one another to the crucial "critical" temperature below which the temperature must fall before liquefaction becomes possible by any means. When helium had been liquefied, its low boiling point temperature at 4.3 degrees absolute brought science into the range where super-conductivity phenomena appear.

Much work, therefore, has been done in the past on machines for liquefying gases. Claude, Linde, and Hampton are but a few names from among many which might be given. In general, however, the liquefaction apparatus falls into two types: those in which a compressed gas is allowed to expand against a piston and do work — thus using up some of its energy in the form of heat and consequently lowering its temperature; and the other type where the gas is allowed to escape slowly through a series of jets but without moving pistons or otherwise performing work. In both cases the cooled air can be fed back around the cooling apparatus and so



An orange was immersed in liquid air, and became hard and brittle throughout. When struck with a hammer it easily broke into fragments

Science Service



Wide World

In the Leyden cryogenic laboratory where Professor De Haas attained a temperature of one five-thousandth of a degree above absolute zero

pre-cool it by what, in radio, would be called a regenerative circuit.

Fundamentally different in the two processes outlined is the nature of the work accomplished. In the first case the work is external against the piston or other movable system. In the second, or free expansion method, internal work is necessary to spread the gas molecules apart and take them beyond their range of intermolecular attraction. In 1908 Onnes began his research on liquefying helium which ultimately succeeded. He used helium gas pre-cooled with liquid hydrogen and then followed the technique of regenerative expansion.

For years Onnes' Leyden laboratory was the only place in the world where liquid-helium temperatures lower than 15 degrees above absolute zero could be obtained. Then, in 1923, McLennan at Toronto accomplished the same feat using apparatus modeled after that at Leyden. In 1925 Meissner at Berlin did the same thing, and in 1930 the National Bureau of Standards' liquefier apparatus was put in operation. Since then other laboratories have entered the field.

But it is one thing to obtain liquid helium boiling at 1.4 degrees absolute and another to go below this point.

To reach new low temperatures like the recent feat of Professor De Haas in Leyden, where one five-thousandth of a degree above absolute zero was obtained, another technique was employed.* The trick was to make a sample of paramagnetic salt cool itself, aided, it is true, by the scientists. Thinking of magnetism by the more classical picture, a paramagnetic salt has its individual unit magnets, the magnetons, oriented in fairly random distribution with regards to magnetic polarity. When such a material is immersed in a container of liquid helium boiling under reduced pressure at 0.8 degrees absolute and the whole unit then placed between the poles of a powerful magnet, there is a liberation of internal energy within the sample as the powerful field of 30,000 gauss is thrown on. Remember, the component of the earth's magnetic field which swings compasses is but three-tenths of a gauss on the average!

The effect of the strong magnetic field is to line up all the magnetons of the sample in something approaching straight lines. A tiny amount of heat is liberated in the process which passes to the surrounding thermodynamic "sink" of liquid helium. Then suddenly the applied external magnetic strength is lowered from 30,000 gauss

*The method used by De Haas was first suggested by W. J. Giauque of the University of California and Peter Debye. Giauque attained a temperature of only 0.1 degrees absolute.

to only a few hundred gauss. The previously lined-up magnetons of the sample swing back to their random alignment and require energy to do so. Since the sole place from which such energy can come is from the sample, the paramagnetic salt gives up some of its energy and has less heat energy left within. Hence it becomes colder and colder still.

All of which brings up the interesting simple questions: how does one know the sample is getting colder and how is its temperature ascertained? How, for example, can one measure temperatures where all gases are liquids and all liquids solids; where a fluid thermometer is frozen solid and a gas thermometer has its gas reduced to a tiny speck of fluid?

In low-temperature work at the record-breaking temperature of a half degree above absolute zero or less, one might say that Professor De Haas and his colleagues use a "magnetic" thermometer, for they obtain temperature estimates of the paramagnetic samples used by noting the change in magnetization as the temperature varies. Changes in magnetization of the sample were obtained by suspending the sample, immersed in liquid helium, from one arm of a very sensitive balance. The relation between the pull of the field and the temperature of the sample was already known for the range of temperatures from 7.2 degrees absolute and 1.3 degrees absolute. As the self-cooled sample begins to warm up to the temperature of the surrounding liquid helium, measurements are made on the attractive force, or pull on the beam balance. A conservative and judicious use of extrapolation methods turns these varied balance readings into temperatures.

For example, the temperature versus magnetization curve bends more or less sharply during the observations. Instead of taking the final point of the curve which might be too low, it is customary to draw a tangent to the curve at its "break" and extrapolate this to the time unit when observations began, *i.e.*, when the sample had, supposedly, its lowest temperature.

One might go further into the technical nature of the experiments performed at these new low temperatures and tell how various findings support and overthrow hypotheses advanced by the investigators in the field. Some, like those performed by Onnes, are startling indeed. A lead wire immersed in liquid helium is placed between the pole pieces of the powerful Leyden magnet. As the field strength is gradually reduced, a current is induced in the circuit of lead. In an ordinary coil, at an ordinary temperature, like zero degrees centigrade, such an induced current would last perhaps a ten-thousandth of a second. In the super-conducting coil, experiments show the rate of decrease was so small that after four days two-thirds of the current's initial value still remained.

Other experiments are equally interesting, but together they all indicate that the present-proposed explanations of the effects are faulty. Dewar was right when he predicted that a new vista of physics would be opened by the work with low temperatures. The visions of electric currents going for days within a super-conducting coil have naturally been intriguing to engineers. In moments of enthusiasm one might picture power-transmission lines of the future made of some super-conducting metal surrounded by a (Continued on page 276)

THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Ceramics—Handmaid of Industry and Art

A HANDFUL of scientists, long at work over kilns and clays in a quiet corner of the Institute, have succeeded in contributing to the art of ceramics some of its most original and important advances of the past 20 years. At the behest of industrialists, they have developed kaolin brick, machines for moulding silica brick, and insulating refractories which are now a vital part of many manufacturing processes. At the demand of the builder and householder for fire-resistant materials, they perfected asbestos shingles and board. Each year industry has snatched up every available Technology ceramist and asked for more. Last month the achievements of this little-known division of the Department of Mining and Metallurgy were recognized with the establishment of the master's and doctor's degree in ceramics.

Candidates for the new doctorate must have, in addition to strictly ceramic subjects, a thorough knowledge of physics, chemistry, physical chemistry, combustion, furnace design, x-ray and crystal structure, drying, heat measurements, and colloids. The degree of master of science will be awarded to students who pass with high standing a required number of advanced subjects. In awarding either degree, major emphasis will be placed on an original and convincing thesis.

The advanced ceramist may investigate products and materials optically by means of the petrographic microscope. He will certainly make a detailed study of the physical and chemical mechanism of fundamental ceramic processes. The physical properties of finished ware, methods of testing, and the control of quality constitute still another field of investigation. In special cases, the student is allowed to choose his own topic of research. Emphasized throughout are initiative, resourcefulness, and creative ability, rather than the

study of details which may better be acquired in the manufacturing plant.

Recent experiments in the laboratory furnaces and kilns have thrown much light on the nature of plastic phenomena and the mechanism of color in the form of new glazes and materials. Of especial consequence at the moment are studies of quick methods of firing and forming, fresh decorative processes, and the adaptation of new materials to ceramic purposes.

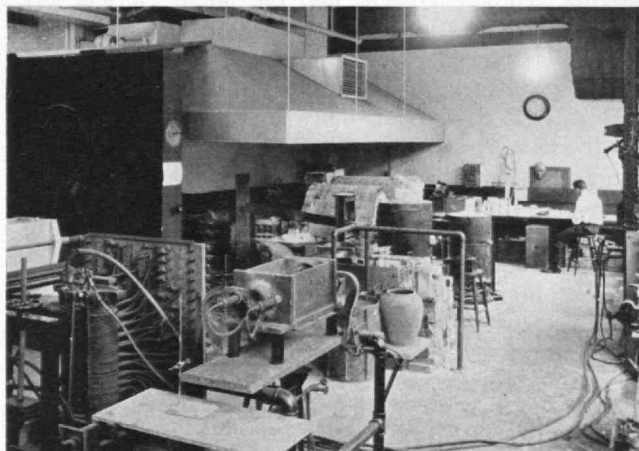
By means of a recent grant from the Penrose Fund of the Geological Society of America, an investigation of the origin of clays will be made in the Institute laboratories. The study will be directed by Professor Frederick H. Norton, '18, who is in charge of instruction and research in ceramics.

A notable museum of historic and contemporary pottery and glass, largely the work of native New England craftsmen, also has been assembled in the division. The collection contains a number of fine period pieces, and is of great value in tracing types of decoration and the general progress of the art.

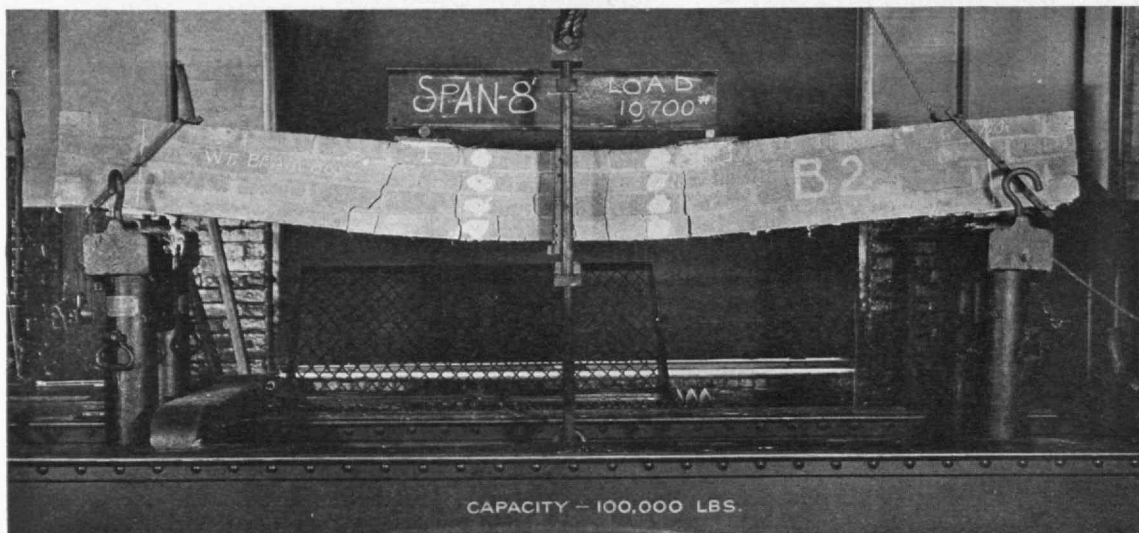
Memorial Fund

A FUND in memory of William B. S. Thomas, '29, who lost his life in an airplane accident in Africa, has been established by his parents, Mr. and Mrs. W. S. Thomas of Johannesburg, South Africa, for the benefit of the Technology Athletic Association, of which their son was President in his senior year. Interest from the fund, which amounts to more than \$900, will be available for the Athletic Association with the approval of the Executive Committee of the Corporation.

Bill Thomas was one of the most active and popular members of the Class of 1929. He prepared for Technology at Phillips Andover Academy, and early became active in undergraduate affairs of the Institute. He was



The annexed text describes the productive investigations at Technology in ceramics. Above are views in the ceramics laboratories. Left: Test furnaces and kilns. Right: corner of the whitewares laboratory



Investigating bending stresses in a reinforced-brick girder in the Institute's Testing Materials Laboratory

a member of the Beaver Club, the Walker Club, Theta Tau, the Calumet Club, Varsity Club, and the Boat Club. He became manager of the varsity crew in his junior year, and was a wearer of the T. He was a member of the Institute Committee and the Advisory Council on Athletics, and in 1928 was elected President of the Athletic Association. He received his degree in the course in Business and Engineering Administration.

Following his graduation, Thomas returned to South Africa. The fatal accident occurred during a flight from Durban to Johannesburg on December 14, 1933.

West to East

DR. NORBERT WIENER, internationally known mathematician and Professor of Mathematics at the Institute, has accepted an invitation to join the Faculty of the National Tsing Hua University in Peking, China, as Research Professor of Mathematics for the next academic year.

Professor Wiener has been granted leave of absence from the Institute, and expects to sail for China next July. He will be accompanied by Mrs. Wiener and their two daughters. During his stay in the Orient he plans to travel extensively and to visit a number of Technology alumni clubs in various parts of the Far East.

Dr. Wiener's outstanding contributions in the field of higher mathematics have brought him wide recognition both in this country and abroad. Last April he was elected to membership in the National Academy of Sciences, and in 1933 he was a joint recipient of the Bôcher prize given by the American Mathematical Society for notable work in mathematical analysis. He is a member of the London Mathematical Society, and in 1931-1932 served as lecturer at the University of Cambridge in England.

A graduate of Tufts College in the Class of 1909, Dr. Wiener received his doctorate from Harvard University in 1913. He has carried on advanced studies at Cornell, Columbia, and the Universities of Cambridge, Göttingen, and Copenhagen. He joined the staff of M.I.T. in 1919, and in 1932 was appointed to full professorship.

The National Tsing Hua University is one of the largest in China, and is maintained by indemnity funds which the United States returned to that country for educational purposes following the Boxer Rebellion. It has a distinguished Faculty, and, from time to time, entertains eminent men in various academic fields as visiting members of its staff. Among them have been Professor George D. Birkhoff of the Mathematics Department at Harvard; the Indian poet, Rabindranath Tagore; Bertrand Russell; the French mathematician, Hadamard, and the French physicist, Langevin.

In the Engineer's Office

ACROSS the gap of adjustment which too frequently lies between the student and the practice of his profession, the Institute recently threw a new span in the form of a graduate course in professional engineering practice. Designed to give students proficiency in handling actual problems that arise in the office of an engineer, the new course opened with the second semester under direction of Professor Charles M. Spofford, '93, of the Civil Engineering Department.

The course will consider the ethical and professional codes of the engineer in relation to his clients, contractors, fellow engineers, and the public. It will also include a study of engineering costs, fees and salaries, the standard specification of materials, and the preparation of contract documents and technical reports. Problems of engineering-office methods, estimates of construction costs and revenue for various types of engineering projects, and other realistic aspects of the profession will be discussed at length.

Students will be required to interpret various contract and specification clauses, to pass upon ethical, business, and engineering questions arising in practice, and to prepare for class discussion contracts for engineering services and specifications in whole or part for simple projects. The course will be illustrated with numerous examples from actual engineering practice, and will be open to a limited number of qualified graduate students and members of the instructing staff of the Institute.

Cement for Boulder

FOR the most meritorious paper presented before the American Concrete Institute during 1934, Professor Roy W. Carlson of the Department of Civil Engineering and three collaborators received the Wason medal at the Institute's annual meeting in New York.

The paper described investigations by Professor Carlson, Professor G. C. Troxell, Professor R. E. Davis, and J. W. Kelly of the University of California, which led to the development of the special cement poured by the million cubic yard into Boulder Dam.

The research, supervised by Professor Carlson under Professor Davis' direction, revealed much needed information on the effect of physical and chemical composition of cement on the heat of hydration, volume change, durability, strength, and other properties of concrete.

Professor Carlson is well known for his research in structural materials for large dams and for the development of electrical measuring instruments to record strain and stress, temperature, and pressure within hydraulic structures. He is the designer of some 700 electrical measuring devices now buried in Boulder Dam, from which engineers expect to gain important knowledge as a basis of hydraulic design.

A Tale of Textiles

GREATER strides in textile research have been made at Technology during the past four years than in 20 years previous to 1930, declared President Compton, Chairman of the Advisory and Textile Education Survey Committees of the Textile Foundation, in a recent report on progress and current trends in textile investigation at the Institute. The report deals particularly with studies made possible by a grant of \$42,694 from the Textile Alliance in 1930.

Textile study at Technology centers in the Department of Mechanical Engineering and has three major objectives:

(1) The development of suitable apparatus and techniques for the mechanical and microscopical testing of textile fibers, yarns, and fabrics

(2) The solution of current problems arising in the textile industry

(3) The application of developments in other fields to textile research, including x-ray analysis, polarized light, high-speed motion-picture photography, direct-color photography, photonic cells, and high-voltage electricity.

Under the direction of Professor Edward R. Schwarz, '23, the development of textile microscopy has made possible advances in the study of raw and manufactured textile materials. The Institute's textile microscopy laboratory is believed to have facilities for research in this field unexcelled anywhere in the world.

Three of the research fellowship projects established by the Textile Foundation in 1932 were assigned to Technology. One of these was in the field of microbiology, and has resulted in important coöperative studies with Professor Samuel C. Prescott, '94, Head of the Department of Biology and Public Health.

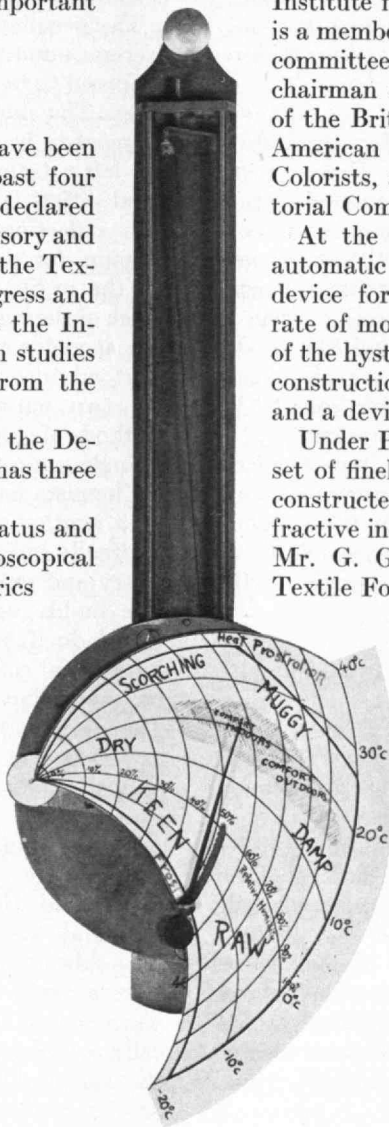
Professor Arthur C. Hardy, '18, who developed the color analyzer for measuring the hues of opaque materials such as paper, textile fabrics, ceramic products, and painted surfaces, coöperated in a project dealing with the spectrophotometric color analysis of dyed textiles. Professor James F. Norris of the Department of Chemistry took part in another study in the field of organic chemistry of dyes. Valuable aid was given by staff members of the Geology Department in a study of petrographic methods and their application to the precise determination of refractive indices for textile fibers.

In the meantime, members of the laboratory staff were active in coöperative studies with the textile industry and several textile associations. Professor George B. Haven, '94, has taken a prominent part in the work of the textile committee of the American Society for Testing Materials and the United States Institute for Textile Research. Professor Schwarz is a member of the research council of the research committee of the latter organization, and is also chairman of its board of editors. He is a Fellow of the British Textile Institute, a member of the American Association of Textile Chemists and Colorists, and a member of the Advisory and Editorial Committees of the Textile Foundation.

At the moment there is being developed an automatic crimp tester of new design, as well as a device for investigating thermodynamically the rate of moisture regain in textiles and the nature of the hysteresis effect. Projected is the design and construction of a new power-driven resilience tester and a device for measuring "corkscrew" in yarns.

Under Professor Schwarz' direction, a complete set of finely calibrated immersion fluids has been constructed to allow precise determination of refractive indices for textile fibers in polarized light. Mr. G. G. Osborne, formerly a Fellow of the Textile Foundation, made a careful study of fiber structure and orientation problems.

George H. Hotte is investigating the measurement of yarn structure and properties by means of the microscope. He is also aiding Professor Schwarz in one of the major projects of the laboratory—the preparation of three sets of longitudinal and cross-sectional mounts of the several hundred different fibers which form the basis of the M.I.T. collection. This material, invaluable for study, is unique in this country.



Registering climate in terms of personal comfort. An ingenious instrument, described on page 265, for analyzing temperature and humidity in a single reading



Underwood

Godfrey L. Cabot's ('81, Corporation) invention to facilitate air-mail express by enabling planes to pick up packages without landing

Also in progress is work in the further application of polarized light to studies of textiles; the improvement of stereoscopic photomicrography; motion-picture photography through the microscope; improved techniques in obtaining cross-sections of textile fibers; and fundamentals of the analysis of microscopic and sub-microscopic fiber structure. In coöperation with a former member of the staff of the United States Department of Agriculture, experiments are also being carried on in the determination of cotton quality by micro-observation and electrical measurements.

Testing machines in the laboratories have been renewed and several pieces of special equipment constructed. These include, in addition to those before mentioned, a constant-load textile testing machine, an experimental bursting tester, and special textile apparatus for precise humidity effects.

Lopsided Molecules

THE direct production of an unsymmetrical molecule has been accomplished by Professor Tenney L. Davis, '13, and Robert Heggie, '33, of the Department of Chemistry of the Institute. For ages plants have been producing such molecules in the form of sugar, nicotine, caffeine, camphor, quinine, and a host of other substances that are familiar and important in daily life.

Davis and Heggie have accomplished what chemists call a total asymmetric synthesis by causing their chemical materials to combine in a beam of circularly polarized light. Such a beam, in simple, is made up of twisted light. Moonlight is largely polarized light, and diffuse sunlight contains a large proportion. The experiments

support the belief that plants accomplish their asymmetric synthesis by reason of the polarized light in which they live.

The chemical processes which occur in living plants produce many substances which are, as the chemists say, "optically active." Cane sugar, nicotine, the tartaric acid of the grape, all rotate the plane of a beam of polarized light which is passed through their solutions. Natural nicotine, for example, turns the plane of the beam through an angle toward the left. How the plant produces the optically active substance is one of nature's mysteries.

The plants are fixed in their habits with respect to the production of optically active substances. The tobacco plant always produces left-rotating nicotine. The whole economy of nature is based upon the understanding that the habits of the plants in this respect are fixed. Animals through countless generations have developed bodies habituated to the materials which the plants produce. One sugar may be wholesome and sweet; another, which differs from it only in having an opposite effect upon polarized light, may be tasteless and without food value. Right-rotating nicotine has different physiological properties from the left-rotating material which occurs naturally in the tobacco plant.

The peculiar effect which optically active substances exercise upon the plane of a beam of polarized light is supposed to be due to a lack of symmetry in their molecules. The molecule of the right-rotating substance is believed to be put together in the same way as that of the left-rotating one, but to differ from it as the right hand differs from the left, as one hand differs from its own reflection in a mirror. Experience confirms the opinion, for the synthesis of an asymmetric substance by the ordinary methods of the laboratory yields as much of the right-handed substance as of the left-handed one; it yields an optically inert mixture of the two. The inert mixture can by various means be separated into the two optically active components; but ordinary methods of synthesis are inadequate to produce directly a single optically active compound.

Chemists have found that a large molecule built up by a synthetic process upon a smaller molecule which is already optically active often shows additional asymmetry and optical activity. The new part of the molecule builds up in a different manner from what it would do if built up upon an inert molecule. Such a process is called a "partial asymmetric synthesis." Examples have been known for a number of years. There is good reason to believe that such processes occur in plants; but the production of the molecule which is optically active in the first place has remained to be explained.

By allowing bromine to combine with trinitrostilbene in a solution irradiated with a beam of polarized light, Davis and Heggie have procured a trinitrostilbene-dibromide which was optically active. The trinitrostilbene-dibromide was unstable and lost its optical activity after a time. The result is of great scientific interest, nevertheless, for it suggests that the synthesis of optically active materials by plants may perhaps be due to the polarized light which constitutes a considerable proportion of the daylight to which they are exposed.

This is the second total asymmetric synthesis to be accomplished. The first was reported last year by two Greek scientists of the University of Athens who worked with "free radicles," molecules containing a carbon atom attached to three dissimilar groups, and allowed them to combine with chlorine in a beam of polarized light, procuring an optically active product. Their results were of the greatest importance in showing that polarized light is an effective agent for the production of optical activity. Their substances, however, differ profoundly from any that occur in nature. The trinitrostilbene with which Davis and Heggie have worked contains an ethylenic linkage. Ethylenic linkages occur in a great number of natural compounds.

The second asymmetric synthesis advances knowledge perceptibly nearer to an understanding of the processes whereby plants, living in the light, produce from the simplest of raw materials the optically active substances which find everyday use in foods and medicines, in the human body, in our clothes, and in our arts.

Measuring Comfort

An instrument which analyzes temperature and relative humidity and, in a single reading, indicates prevailing weather conditions in terms of personal comfort has been developed by Athelstan F. Spilhaus, '33, a research assistant in the Division of Meteorology.

The device, which is known as an air-mass indicator, combines a bimetal thermometer and a hair-hygrometer, which react to temperature and humidity to register atmospheric conditions in a single reading. The instrument is expected to be especially valuable in warning pilots of the dangerous conditions of temperature and humidity in which ice begins to form on airplane wings.

The air mass indicator does not make weather forecasts, but analyzes prevailing weather conditions. Its operation is based on the knowledge that indications of weather conditions are found by analysis of the great air masses of the atmosphere. These air masses arise in various parts of the world, and their characteristics are so well known to meteorologists that each type has been given a name. They differ radically in temperature, moisture content, and direction of movement. Changes in weather, such as snow, rain, and wind, occur at the boundaries or fronts of these vast air lakes when contrasting masses meet.

The new instrument identifies the particular type of air mass prevailing in a locality and indicates the conditions it produces in terms of comfort as expressed by temperature and humidity. The meteorologist knows the air masses of the North American continent by various technical terms, such as polar continental, polar maritime, tropical continental, or tropical maritime air. The man on the street knows them by the atmospheric conditions he describes in such familiar terms as "scorching," "muggy," "damp," "dry," "keen," "raw," or "frosty."

Comfortable weather conditions in the summer usually indicate that a polar continental air mass is overlying the region, while in winter a tropical maritime air mass may be expected to (*Continued on page 266*)

BENDING MOMENTS

Yankee Inventors at Work

WE present our Shrovetide list of recent patents gleaned from the Official Gazette of the United States Patent Office:

FOR MORE RESTFUL SLEEP — A device to hold the jaw shut at night, thus keeping one from opening his mouth and snoring.

FOR FUTURE SUCCESS — A mandible developer consisting of a plate to be attached to baby's bottle so that the little fellow cannot get the nipple in his mouth unless he thrusts his lower jaw forward.

FOR SANITATION — Two ventilating hats. For men, a felt hat with holes in the hat and holes of corresponding size in the band, and the band movable on the hat, so that the amount of ventilation can be tempered to the climate. For women, a crush hat with a slit in it and a zipper closure to control the intake.

FOR MORE BOBBIE JONESES — A golf club with a central section of the handle which comes off altogether if the tyro holds back too much with his lower hand on the down swing.

FOR BEAUTY — A lawn sprinkler with several flexible tubes coming off from it, all tubes concealed within the verisimilitude of poppies, tulips, or other desirable plants.

FOR SPORTSMEN — A fish lure consisting of a coil twisted to resemble a bunch of worms, with a light inside the coil.

FOR EVEN BETTER YULE — A Christmas-tree stand which rotates and plays tunes while it rotates.

FOR CLEANER FACES — An ice-cream cone whose contours provide a drip.

FOR DARK NIGHTS — A combination of flash light and lipstick, whereby the light of the flash illuminates the lips to be lipsticked, while a mirror forming part of the switch button of the light assists the applicant in applying the stick where it belongs.

Dilemma

IF THE horns of a dilemma can be tooted, below is a poser that will produce lusty oom-pahs. You are invited by the Quidnuncs to send in your own response.

Ask an adult what he would choose if he were offered the alternatives of total annihilation or of beginning his life over again, living it up to the present moment exactly as he has lived it, to face again the same alternatives. Make it clear that he is not, in his second life, to be allowed to profit by what he has experienced in the first. . . *

A Boston physician reported in a recent issue of *Science* that he had presented the alternatives to 121 people, mainly drawn from hospital and university personnel, that only 20 out of the 121 had chosen annihilation. Which would you choose?

THE QUIDNUNCs.

* From "Civilized Life; The Principles and Applications of Social Psychology," by Knight Dunlap. Baltimore: Williams and Wilkins.

produce pleasant conditions of temperature and humidity.

The air-mass indicator promises to be useful in indicating zones of comfort to be maintained in air-conditioned buildings. Comfort at comparatively low temperatures requires higher humidities than the corresponding degree of comfort at high temperatures. Thus with a high temperature the humidity should be low, while with a low temperature a high humidity is desirable. The reason for this is that at low humidities evaporation from the body is more rapid and the process produces a cooling effect. At low temperature such a cooling effect is uncomfortable, and can be prevented by a higher humidity.

The value of the instrument to air pilots lies in its ability to register accurately and quickly the conditions of temperature and humidity in which ice begins to form. Hitherto, airplane pilots have had to depend upon temperature indications alone for warning of ice formation. The air-mass indicator shows that ice begins to form on the wings when the relative humidity reaches approximately 100% and the temperature falls slightly below freezing. If the indicator needle begins moving to a lower temperature range, at the same time registering an increase in humidity, the pilot knows at once that he is entering dangerous air. A drop in temperature with no rise in humidity, however, would show him that there was no danger of ice formation.

One of the interesting features of the new instrument is that both the dial and the needle pointer move in the process of giving one reading. The dial, rising and falling, registers temperature, while the indicator finger moves to right or left in recording humidity.

New Model of the Cape Cod Canal

A HUGE-scale model of the Cape Cod Canal and Buzzards Bay is being built at the Institute to enable engineers to study in advance the effects of the proposed enlargement of the waterway.

The model will show the canal as it will appear when it has been widened to 700 feet on the surface and dredged to a depth of 40 feet, which will provide a waterway capable of accommodating most of the large liners as well as naval vessels. The model will be 115 feet long and will occupy an entire building which has been set aside for this research.

The project is under the direction of Professor Kenneth C. Reynolds, '25, of the Department of Civil and Sanitary Engineering, who is cooperating with Colonel John J. Kingman of the United States Army Engineers Corps in a study of the hydraulic problems that will be encountered in enlarging the canal. Lieutenant E. C. Harwood is supervising the study for the Government, and Donald F. Horton, '27, is his representative in residence at the Institute. The work is expected to last for several months.

The complex nature of the investigation is indicated by the fact that the average rise and fall of the tide in Cape Cod Bay is five feet greater than in Buzzards Bay, a distance of 13 miles through the canal. There is also a tide time difference of three hours between the bays.

As a result, the tide in Buzzards Bay is rising while the sea is still falling in Cape Cod Bay, and the tide in Buzzards Bay begins to ebb several hours before high water at the other end of the canal.

Occasionally, under unusual conditions of flood tide driven by high winds, maximum differences in level of nine feet between the bays may occur. At high tide in Cape Cod Bay the water rushes westward through the canal to the lower level in Buzzards Bay. Six hours later the current reverses and flows swiftly east. Under ordinary conditions the maximum velocity of these currents exceeds three miles an hour, while during storms it may reach nearly five miles an hour.

The model will be built to a scale of approximately nine feet to the mile, and will be constructed of concrete and sand to form a channel accurately reproducing the curving path of the canal across the Cape. The reproduction of Buzzards Bay alone, with its numerous inlets and islands, will occupy a space of 35 by 50 feet.

Enlargement of the canal is expected to change the sea levels at both ends of the canal and to alter the velocities of currents through the waterway. At present, water flows through the canal at approximately 13,500,000 gallons per minute. After enlargement the flow is expected to be at least 75,000,000 gallons per minute. Scientific devices will accurately reproduce in miniature the ebb and flow of the tides, and various floats arranged along the canal will record the effect of currents and wave motion.

The rise and fall of the tide, although imperceptible to the eye, is actually the motion of a gigantic wave. In previous studies in the Institute's river hydraulic laboratory on a smaller model of the canal, methods were devised to produce waves ranging from slight ripples to the full surge of the tide. Delicate instruments record these waves in the canal and supply data for calculations. Time, as well as physical proportions, is reduced in these experiments, making it possible to produce the complete cycle of the tide, which in nature requires some 12 hours, within a few minutes.

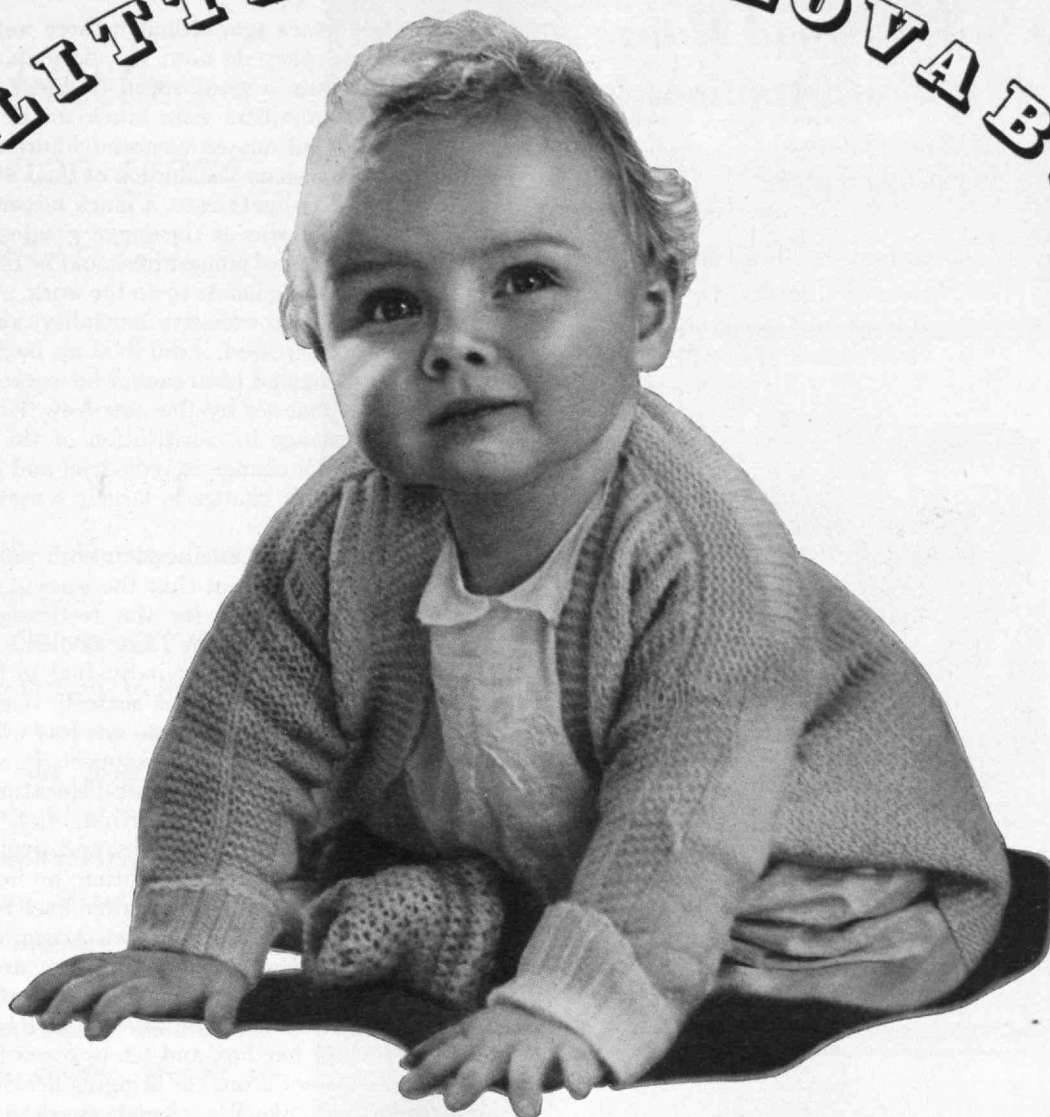
Professor Dwight Porter

IN the death of Professor Emeritus Dwight Porter of the Department of Civil and Sanitary Engineering on February 26, the Institute lost both a distinguished engineer and a kindly and meticulous teacher. Prior to his retirement in 1921, Professor Porter was for 38 years a member of the Technology staff. He was known throughout New England for his work as an educator and for his noteworthy contributions in the field of hydraulics.

Professor Porter was born in Hartford, Conn., in 1855, and was graduated from Yale University in the Class of 1880. For three years he was a special expert agent on water power for the Tenth United States Census, and his report on this work long served as a standard reference on the subject.

In 1883 he joined the staff of the Institute as instructor of mathematics, and two years later turned to civil engineering. He was made Assistant Professor in 1887, and three years later became Associate Professor. His appointment as Professor (*Continued on page 280*)

SO LITTLE... SO LOVABLE



and so dependent on you

WHAT excitement there was when she got her first tooth. And her second! And now there are seven. Already she is making brave attempts to say a word or two.

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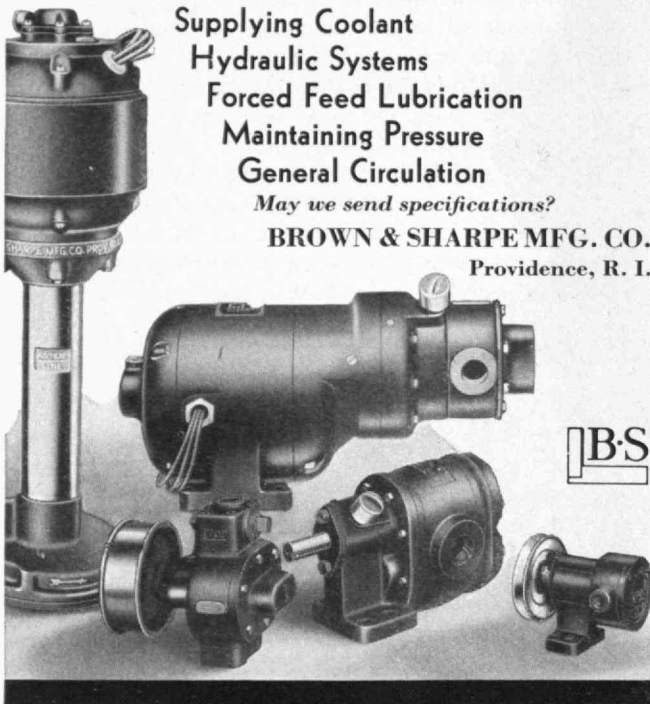


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LIMITATIONS OF SCIENCE

(Continued from page 256)

A hundred years ago, although there were men who lived as long as they do now, the old man and woman did not constitute a great social problem in the community. Their numbers were much smaller and those who did exist had numerous grandchildren and great-grandchildren to share the burden of their support. Owing to the greater death rate, a much larger percentage of the community was at the age of greatest vigor and the hard conditions of pioneer life could be faced with an abundance of strong hands to do the work. An excessive fertility matched an excessive mortality, and although the population increased, it did so at no inordinate rate. The old New England farm cannot be worked in the old New England manner by the new New England farm family. The change in constitution of the population must be met by a change in industrial and agricultural technique and this change is largely a matter of engineering development.

Thus medicine and engineering both partake in the responsibility for the fact that the present state is not one of equilibrium and for the restlessness thereby caused in the souls of men. That medicine has not exploited the inventions of an individual to his personal benefit, as has engineering, is scarcely relevant to the matter. Medicine has more than one way of making the public pay handsomely for its support. It is also manifest that just because the present dislocation of society does not rest merely in the introduction of external things, like elevators, automobiles, and airplanes, but in a change of its internal constitution, no hope exists of its finding equilibrium at some earlier level, or even at its present instantaneous level. When Adam and Eve are driven from the Garden of Eden, they are not readmitted after a promise to forego all they learned by eating of the fruit of the tree of knowledge. Pandora is not allowed to close her box and let bygones be bygones. Prometheus cannot atone for bringing fire down to man by extinguishing, like a boy scout, every little fire that he meets.

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Moves on: nor all your Piety nor Wit
Shall lure it back to cancel half a Line
Nor all your Tears wash out a Word of it."

(Continued on page 270)



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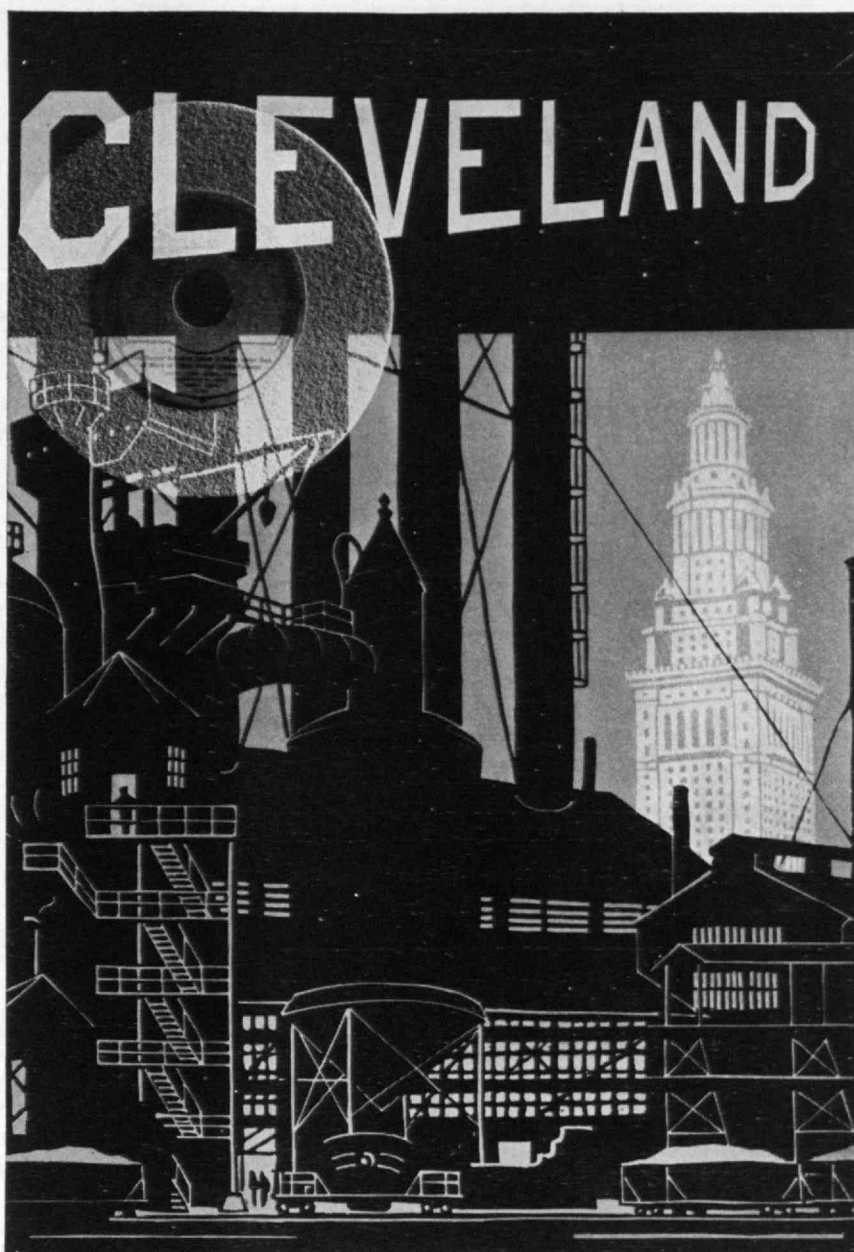
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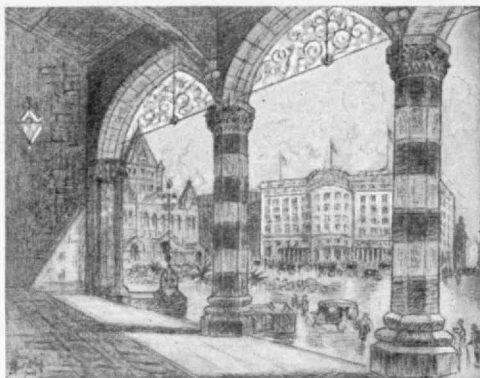


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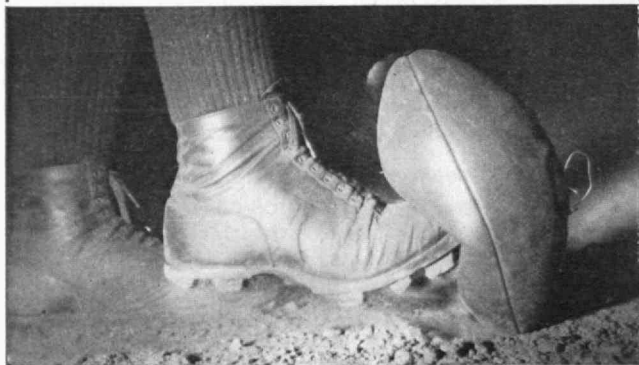
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THE TECHNOLOGY REVIEW

Cambridge

M.I.T.

Massachusetts

LIMITATIONS OF SCIENCE

(Continued from page 268)

For better or for worse, we are destined to live in a world devoted to modern science and engineering. If the road that we are on is slippery, we cannot avoid a catastrophe by putting on the brakes, closing our eyes, and taking our hands off the wheel. Science is a going concern and those who participate in it can only render worthy service by keeping their hand in. A five-year holiday from science would mean that a younger generation of disciples would cease to exist; that the older men to educate the generation to come would have lost much of their cunning; and that 20 years would be necessary to repair the ravages of such a holiday. The War is 17 years dead and the end of the damage to science of its five-year holiday is not yet in sight.

It is a particularly unfortunate suggestion to attempt to right the evils of the social situation by withdrawing scholars in large numbers from the natural sciences and putting them to work in sociological sciences. We have many an example in medicine where such a frontal attack has failed ignominiously. Cancer research is drawing more money and more talents than perhaps any one field of medicine in the last 20 years, but it remains true today that a patient with an internal cancer is doomed to death more surely than if any court in these United States had pronounced upon him its sentence. What progress is being made in the study of cancer is coming largely from cognate fields, such as that of organic chemistry, of hormone research, and of the study of vitamins. Science grows by indirection, and projects to harness its energy and draw it consciously only to the useful may be compared with projects in which an explorer should be sent to an unknown country with the injunction only to explore agriculturally useful land.

I definitely wish to state my complete concurrence in Dr. Cushing's feeling that scholars should interest themselves in useful matters. Nevertheless, I have no hope that the problems of sociology will be solved by a mass attack of men trained to the natural sciences along the lines of the staff of the Rockefeller Institute in medical matters. The difficulties of sociology lie much less in its details than in its ideas and fundamental methods, and will only be resolved by the understanding of people who have devoted their lives to the work. It is as foolish to expect that five years' work of scientists taken out of their proper fields will make any progress worthy of the name as it would be for the (Concluded on page 272)

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LIMITATIONS OF SCIENCE

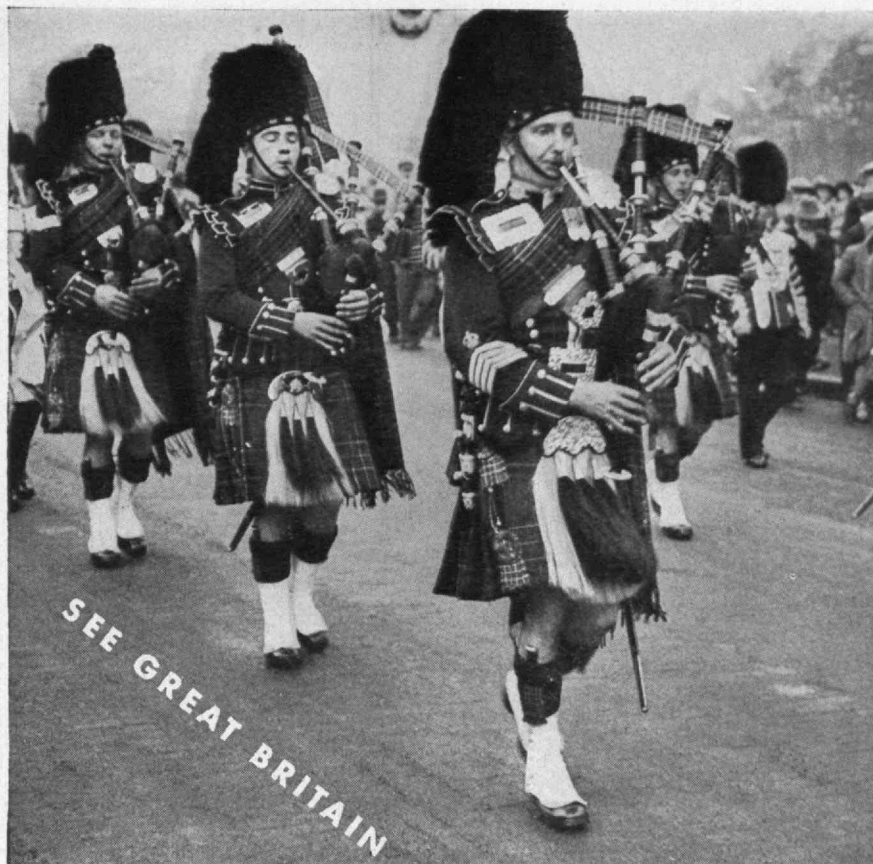
(Concluded from page 270)

family of a patient dying of cancer to go into cancer research with the expectation of being of any real service to that particular patient.

First among the difficulties of sociology is its time scale. The really important phenomena of sociology do not make their meaning clear in less than a generation, and we stand between a past that has not collected the special information which we want and a future which we shall never live to see. Imagine a geneticist whose only biological material consisted in elephants and century plants! You could not expect any very rapid progress from him. Furthermore, the space scale of sociology is the entire world. To isolate a sociological phenomenon which runs over a period of years under essentially constant conditions is almost impossible, and the statistical method which is so much in favor at the present day runs against the insurmountable obstacle that its series of data are all too short for any fine analysis.

Again, before Dr. Cushing performs a new operation, such as his famous operation on the pituitary, I presume he makes numerous experiments on dogs, performs a large number of trial operations on cadavers, and in the event of an unsuccessful termination to the case performs a *post mortem* to find out exactly why the particular case may have gone wrong. It is quite impossible to find a community which will lend itself freely to social vivisection. It is quite impossible to find two communities which are sufficiently alike so that one may interpret the results of such a vivisection on one with any confidence in the results on the other. It is even more difficult to find a large enough number of such communities to make statistical results of much value. The technique of autopsy on communities is unknown to me. Under such conditions, if they should occur in the medical world, I am quite sure that Dr. Cushing would have to confine himself to a purely symptomatic treatment of his patient, and that he would have to forego all attempts at an application of the wealth of resources of modern science. There are fields of medicine which actually are in this state: Psychiatry, for example. As a layman, I have long had the feeling that when a psychiatrist treats a case, a large part of his treatment consists in placing the card descriptive of the symptoms of the case in a certain file in his card catalogue and that if the prognosis and the history of the case are in conflict, a large part of the further treatment consists in transferring his card to another file. In other words, the methods of modern science are not even yet applied in psychiatry, yet sociology is largely the psychiatry of crowds.

Dr. Cushing would be the last person in the world to encourage the layman to expect the impossible in medicine and to take his medical man for a medicine-man. Nevertheless, Dr. Cushing's demands in sociology amount essentially to just this. The fact remains, despite all our wishful thinking, that there are fields in natural science, in medicine, and, above all, in sociology that are not ripe for an attack by the refined tools of modern physical science; that demand the mentality of the general practitioner who is treating the patient rather than that of the specialist who is treating the disease; and where there is no short-cut toward the obliteration of our ignorance. With all respect for sociology, the time has not come for scientists to lead a great trek into its unknown wastes.



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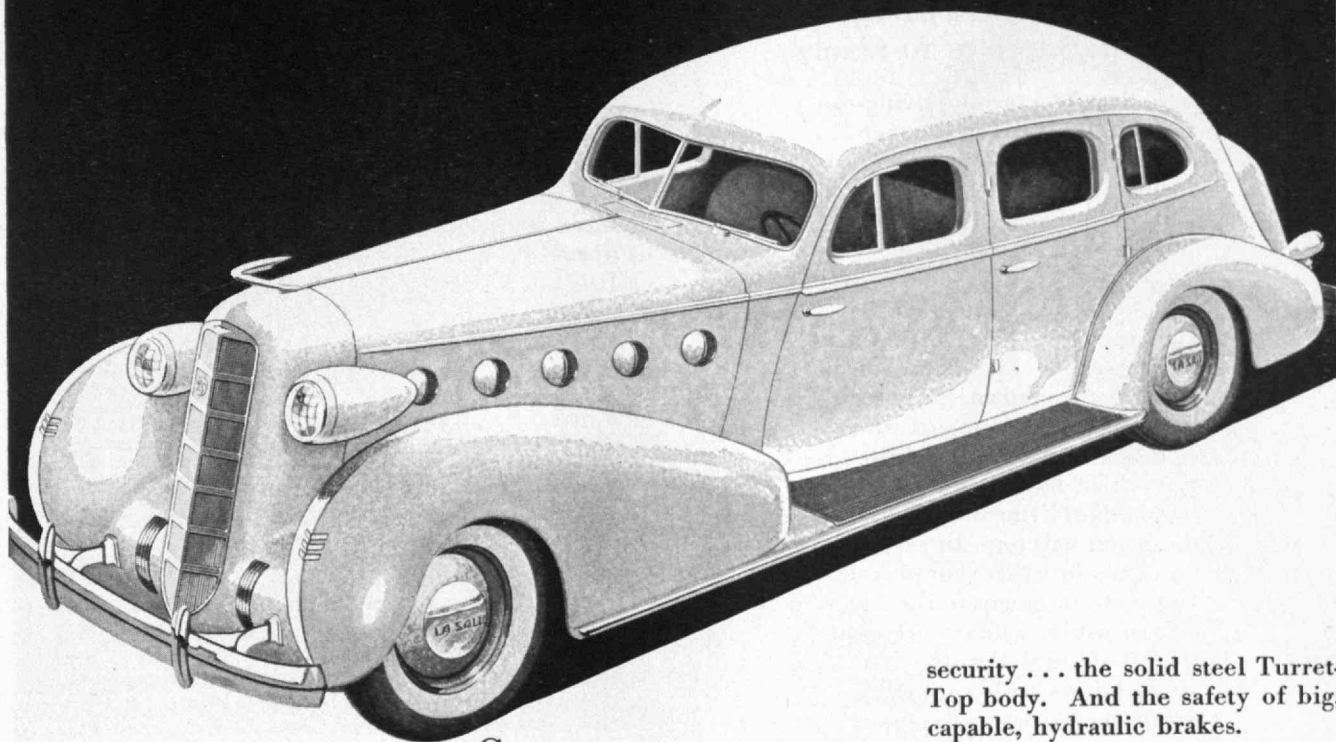
MARK HOPKINS: NEW STYLE

(Concluded from page 258)

principles by phenomena or processes which are either known to the student as a part of his general information and experience, or by new examples which will command his interest and imagination

2. A sufficient breadth of interest and knowledge of other inter-locking sciences so that their inter-relations may be visualized, and clearly expressed
3. An impelling interest in his work and in his field of learning, and an appreciation of *truth*, wherever found
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THE COLDEST COLD

(Concluded from page 260)

cylinder containing liquid helium. Some arrangement like present-day electric lines put inside what would look like oil pipe lines might be one picture. It is a picture far in the future, but possible.

A search has been made to find out how high one can raise the temperature and still have super-conducting properties. Onnes, recall, discovered super-conductivity when he immersed mercury in liquid helium at about four degrees absolute. Since those experiments of 1911, research of Meissner in Berlin has disclosed that for certain alloys the temperature can be ten degrees absolute. Certain carbides and nitrides exhibit this somewhat higher super-conductivity temperature.

Alloys in many ways represent a most inviting field for investigation in super-conductivity. Alloy two metals like bismuth and thallium. Thallium alone becomes super-conducting at 2.47 degrees; and bismuth alone shows the phenomenon at 1.5 degrees absolute. But put together in the right proportions, the Tl-Bi alloy becomes super-conducting at 4.2 degrees absolute! Similarly, experiments at Toronto by McLennan and his colleagues indicate super-conducting metals and non-super-conducting metals can be alloyed and exhibit super-conducting properties.

So super-conducting are some metals studied that 900 amperes of current can be carried by each square millimeter of the sample without encountering appreciable resistance. Think of finding some practical, engineeringly applicable way of passing 1,800 amperes through number 16 British Standard gauge wire without making it warm up.

It is toward such dreams that research drives ahead.

MAIL RETURNS

(Continued from page 242)

leader tried to ride into county office on the issue; but there was nothing in the local opposition that could not have been overcome after election by eliminating the negro homestead and using a little diplomacy.

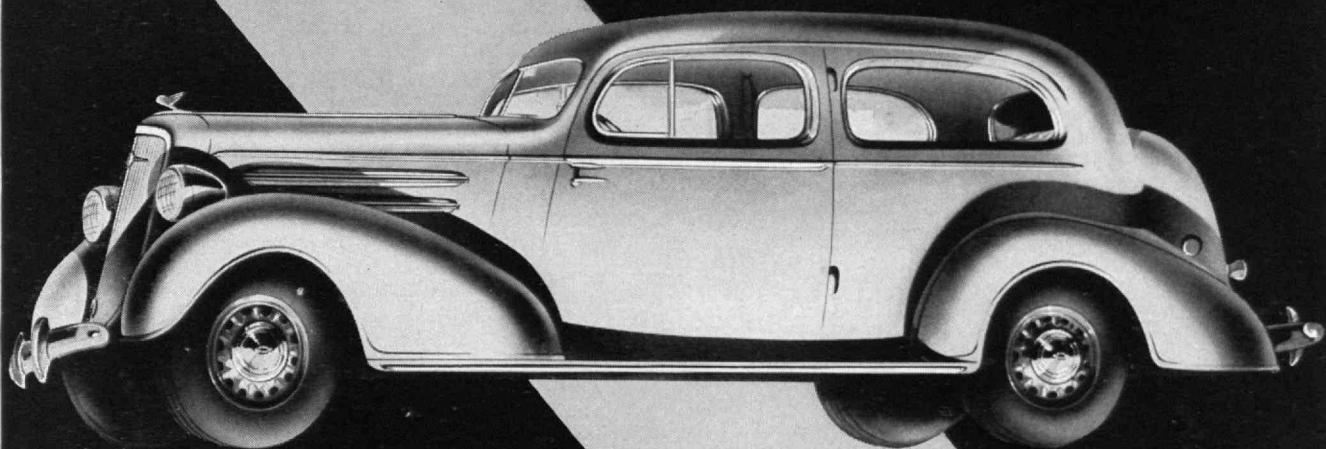
Apparently at this time there is no definite plan for proceeding with the project. Fifty thousand dollars was allocated to the first unit. When construction ceased about thirty-five thousand dollars had been made available. No one knows if Mr. Ickes will ever provide the balance or the three or four hundred thousand promised a year or more ago for additional units. The Federal representative who has been here some seven idle months has gone to a better job. Some land and liens on half a dozen houses are about all the Government has to show for its money. Perhaps it is a low price to pay for experience which demonstrates so clearly that projects conceived in ethical thinking should be examined in the light of history before being undertaken. Scientific consideration, apart from ethics, can usually make consequences predictable.

The production units suffered from most of the ills of the homestead unit in addition to ills peculiar to themselves. At no time did they take their members off the relief rolls. The efforts of part of their members provided some clothing and food items which otherwise would have been lacking, but at a frightful cost...

Like other features of the New Deal, everything that looked feasible was tried without first examining the chance for success and the consequences of making the attempt. At one time rabbits were to provide meat for all the members of all the units, with money on the side from the sale of skins. The rabbits died of disease. Then pigs were chosen to meet that need. They went the way of the rabbits. Several units acquired farms, to find by experience that land which could not support one family could do little for several. A shoe factory was equipped and remained idle for months. There was no one in the unit who knew how to organize and operate it. (Concluded on page 278)

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MAIL RETURNS

(Concluded from page 276)

So long as relief was given in kind from the commissary, bread baked by one of the units and cheap garments made by others could be exchanged for cash. These were almost the only sources of money for gasoline and other overhead items. When the city adopted other methods of giving relief, cash could not be earned and success became evidently impossible to the most ethical and impractical of the production unit advocates. There is no point, of course, in putting men already employed out of work, by offering to the market goods made in an inefficient manner by persons on relief.

It is interesting to note that the production units in Dayton were started before the idea was taken up by the Federal Government. For them and for the early promotion of the homestead unit, money and credit were supplied by the Dayton Bureau of Community Service from the community chest. Business and industry cooperated without question, until it became clear that the whole enterprise was based on wishful thinking and not on scientific investigation and sound experience.

Unless Professor Burdell can cite a development more successful than those late of Dayton, there is no more "challenge to the *status quo* or the profit system" than the homesteading which we, in Ohio, have had with us for years and which is no challenge at all. Given normal conditions, our factories have no difficulty in giving employment attractive enough to secure workers whether they have land with pigs and cows and chickens or not.

That industry in Ohio does not fear the effect of any subsistence-homestead idea is evidenced by the fact that the larger companies have long encouraged their employees to become home owners and many provide land and facilities for such vegetable gardening as their employees wish to undertake.

EDWARD C. WELLS, '92

Platt Iron Works
Dayton, Ohio



a SPRINGTIME TONIC on the ISLE of JUNE



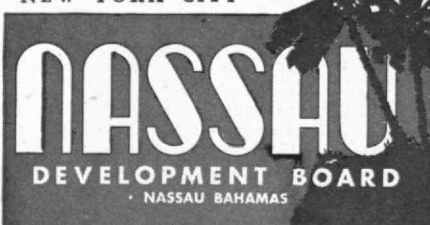
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Dr. Burdell Replies

DEAR REVIEW:

I cannot see that Mr. Wells has buttressed his criticism with any more convincing "facts" than I presented. My lifelong residence in Ohio, as well as my last year's service as State Administrator for emergency education, provided me with means for observation almost as good as Mr. Wells', and probably considerably more objective, all things considered. He makes the unqualified statement that production units and homesteads were conceived and executed without scientific investigation or planning. This is palpably untrue in view of the constant contact that the "suspect" promoters maintained with specialists in the Ohio State University, the Farm Bureau, and other agencies. The National Conference of Subsistence Homesteads, held under their auspices in Dayton on December 8-9-10, 1933, attracted leaders in engineering, education, agriculture, architecture, business, and government.

Nobody ever maintained that living in the urban fringe and working in the city factory was a new idea, and incidentally, the Brook Farm experiment of 1847 was not this. The newness of the Dayton idea lay in the attempt to do it cooperatively. The excessive cost of the Reedsville, W. Va., project was due to blunders rather than to any inherent weakness in the project.

Mr. Wells' statement that there was no one included in the group capable of leadership, no executive ability or experience, is a matter of opinion. I submit with just as much finality that Messrs. Joseph, Wall, and Agenbroad have those qualifications. The town-meeting idea of community government which Mr. Wells deprecates has been reasonably satisfactory here in New England since the Seventeenth Century. Evidently the "idea" couldn't be revived in a direct descendant of the Northwest Territory carved out of the western claims of these same New England states, where, in the course of time, citizens out there divested themselves of democratic government by towns for a questionable device of representative government in county commissioners. The concern that Mr. Wells displays over home owners indulging in heated arguments and lengthy discussions concerning their common welfare rather suggests the personal bias of those who regard political consciousness a vice rather than a virtue. Just what are "the really important matters" that are handled so much more efficiently in Ohio by Boards of County Commissioners? I have lived all my life in Ohio and have served on many boards appointed by such Commissioners, and I have yet to be impressed with the advantage of that system over the New England town-meeting form of government.

Mr. Wells is evidently unaware of the successful self-help production units in California and elsewhere. I have before me an article from that State calling attention to an exposition this month in the Shrine Auditorium at Los Angeles, from March 10 to 17, sponsored by the state department of relief and supported by a local committee of business men and civic leaders. It is claimed by the local director, George Roth, that \$14,000 has been saved Los Angeles county since January 1, 1935, due to the economical distribution of 283 tons of surplus commodities. Clothing, furniture, art work, baked and canned goods, and 100 other articles are being displayed this week in this mammoth exhibit of production for use.

Mr. Wells concludes that "business and industry cooperated with the Dayton project without question." There again I beg to differ. The city was divided into two armed camps over this subsistence project. It is significant, however, that a former adjutant general of Ohio, General George Wood, was the volunteer director of the financial management of the homestead which Mr. Wells points out as being so terrible.

Unfortunately, Mr. Wells has me when in his final paragraph he challenges me to cite a successful homestead unit born out of the depression. The business of cracking heads wherever they show themselves in the wrong place is an old game of the let-well-enough alone citizen as well as the reactionary. The difficulties inherent in a truly cooperative subsistence project may be overwhelming, but it is difficult for roses to bloom when icy blasts are let loose whenever they tend to bud. "Given normal conditions" is just the catch that led many docile people to look for prosperity around the corner. Mr. Wells quite evidently views with alarm and regards with dismay the rugged individualism that tries to tackle the problem of self-help and security in a topsy turvy industrial system.

EDWIN S. BURDELL, '20

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THE INSTITUTE GAZETTE

(Concluded from page 266)

of Hydraulic Engineering came in 1896. From 1914 until his retirement he served as Professor of Hydraulics and Sanitary Engineering.

Previous to the construction of the Cape Cod Canal in 1914, Professor Porter was asked to make a study of the probable conditions to be met in cutting the proposed channel. When the canal was finally built, engineers were amazed at the remarkable degree to which his predeterminations proved true.

Professor Porter was a member of the New England Waterworks Association, the American Society of Civil Engineers, the Boston Society of Civil Engineers, and the Society for the Promotion of Engineering Education. He made his home in Malden, where he died in his 80th year.

Council Meeting

COMMENCING with dinner in the North Hall of Walker Memorial, on February 25, the 178th meeting of the Alumni Council was directed by President Charles E. Smith, '00. The 71 members and guests present listened with approbation to the main program for the evening presented, under the direction of Walter H. Stockmayer, '35, President of the Senior Class and of the Institute Committee, by representatives of various undergraduate activities.

The Technology Christian Association believes in service. G. Peter Grant, '35, reported that in addition to religious activities it has charge of the freshman camp, the Handbook, freshman advisers from the Junior Class, the Technology blotter, service to foreign students, transportation and theater-ticket service, second-hand book exchange, employment bureau, and boy's work department. — Athletics are unique at Technology, in that they are run entirely by the students. William W. Cross, '35, gave the Council an outline of

the structure of the Athletic Association, including an explanation of the division by sports of its budget of \$14,000. This year an effort is being made to gather a supply of uniforms.

H. William Parker, '35, representing the Musical Clubs, explained that three big concerts are given each year, and various outside concerts, including participation in the New England Glee Club contest. Sunday afternoon concerts at Walker Memorial are popular, but financing is difficult as there is a much lessened demand, these days, for paid services in outside concerts. — Dorian Shainin, '36, new Editor of *Tech Engineering News*, told the Council that this publication is now 15 years old, and last year won the trophy cup as the best student scientific publication in the United States.

Other reports of great interest were given by Philip P. Johnston, '35, Combined Professional Societies; Fred A. Prah, Jr., '36, Tech Show; John Duff, 3d, '35, *Voo Doo*; John D. Hossfeld, '35, *The Tech*; Edward E. Helwith, '35, Tech Union; John B. Ballard, '35, Budget Committee; Bernard H. Nelson, '35, *Technique*; and Gerald M. Golden, '35, 5:15 Club.

One very impressive feature of the various presentations by the students was their poise, confidence, and fine expression. The talks were fluently given, in marked contrast to those of years ago when many students were unable to present their material with coherence and clarity. The Institute is to be congratulated on the progress it has shown in training young men to speak before an audience.

Before the dinner Dr. Samson presented two striking exhibits — one showing the principle of the gyroscope rotated by a magnetic field, and the other the greenish light produced by a Telsa coil in a glass bulb, air free, in which mercury has been made to boil over a Bunsen flame.

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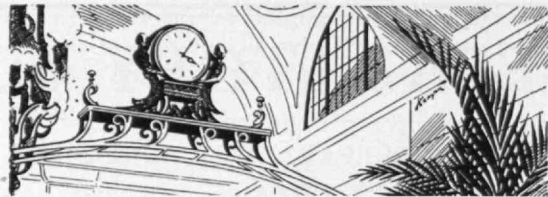
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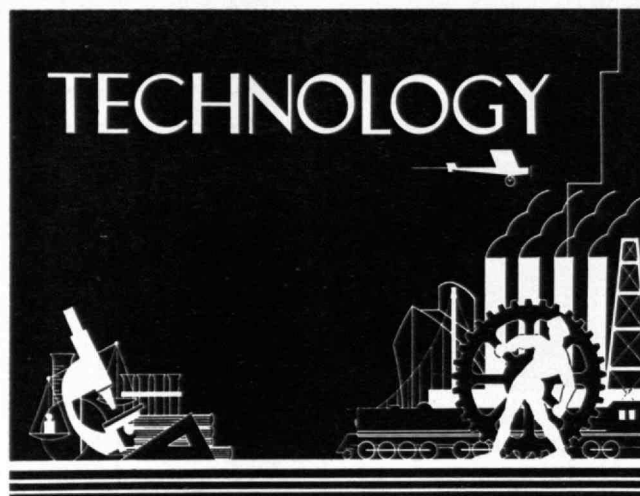
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TECHNOLOGY MEN IN ACTION

CHECK-LIST OF THE ACTIVITIES AND ACHIEVEMENTS OF M.I.T. ALUMNI, OFFICERS, AND STUDENTS

In the News

□ HENRY E. WARREN '94, on being awarded the 1934 Lamme Medal "for outstanding contributions to the development of electric clocks and means of controlling central station frequencies." Mr. Warren, President of the Warren Telechron Company, Ashland, Mass., has designed and constructed various forms of electric clocks. To utilize commercial alternating current, he invented a new form of self-starting synchronous motor adaptable for use in clocks under different conditions from those to which ordinary power motors were subjected, and he developed an instrument for measuring frequency with great precision.

□ FRANK B. JEWETT '03, on being awarded the Faraday Medal by the Council of the Institute of Electrical Engineers for conspicuous service rendered to the advancement of electrical science.

□ VIGGO E. BIRD '08, on becoming President of the Hartford (Conn.) Electric Light Company.

□ JOHN T. ARMS '11, because, on the 20th anniversary of his first one-man exhibition, he revealed that he has never used an etching needle in doing his famous prints of European cathedrals which are marked by great intricacy and delicacy of architectural detail. This refinement of line he obtained by using a sewing needle which is more flexible; otherwise, he follows the ordinary procedure. Mr. Arms soon completes his 300th etched plate—a wine glass. In future his work will include fewer architectural subjects, more still life.

□ MARK REED '13, as the author of "Petticoat Fever," played at the Plymouth Theater (Boston) in February. Mr. Reed studied architecture at M.I.T. after graduation from Dartmouth. Although he turned to literature, he has found his technical training invaluable in playwriting.

□ ALBERT F. HEGENBERGER '17, as supervisor of the project to install the Army Air Corps' radio blind landing system recently adopted by the Bureau of Air Commerce. Landings will be at "suitable sites" along the mid-continental airway between New York and Los Angeles.

□ JOHN C. LESLIE '28, on becoming acting engineer for the new operating division of Pan American Airways' Pacific Division.

Fifty Years Ago

□ Skyrockets soared from the top of Great Blue Hill in Milton, Mass., on January 30, 1885, to mark the official opening of its weather station, and again on January 30, 1935, skyrockets marked the 50th anniversary of this event. Built by the late A. LAWRENCE ROTCH '84 at his own expense (later presented to Harvard, where he was a member of the Meteorology Department), the Blue Hill Observatory has an historical background of considerable interest in the world of weather science. For 50 years continuous records have been kept; and no set of observations in this country and few in the world surpass in continuity and detail those made at Blue Hill. Professor A. H. Gill has prepared a complete account for the '84 class notes in the May issue.

Reunion in Orjonikidize

□ Professors C. E. LOCKE '96, C. L. HAYWARD, and E. E. BUGBEE '00 received a radiogram on December 31 from a committee arranging to celebrate on January 15 the 30 years' jubilee of Professor VLADIMIR MOSTOWITCH, who took graduate work in the Mining Department, M.I.T., in 1910 and 1911. One-time member of the faculty of the University of Tomsk and of the Mining Academy at Moscow, he is at present on the faculty of the Inzvetmet Metallurgical Institute in Orjonikidize (formerly Vladikavkaz), Northern Caucasus. In view of the uncertainty of transatlantic air travel, the gentlemen reluctantly decided to forego the pleasure of being with Professor Mostowitch.

Written

□ In "The Advance of Science" by Watson Davis, a half page on the work of Professor EDGERTON '27 and K. J. GERMESHAUSEN '31. The opening sentence reads: "One of the most promising things turned to the aid of biology during recent months is the ultra-high-speed motion picture cam-

era of Dr. H. E. Edgerton and K. J. GERMESHAUSEN of M.I.T."

□ By Professor WILLIAM H. TIMBIE, an article in *Printers' Ink* for December 13, on "Jobs and How to Find Them: A Working Formula."

□ By C. FRANK ALLEN, Professor Emeritus, M.I.T., an article in *Journal of Engineering Education* for November, 1934, on "The Educational Background of Certain Distinguished Engineers."

□ By ALLEN B. McDANIEL '01, an article entitled "Groundwater Cut-off Wall Provides New Water Supply," in *Engineering News-Record* for December 13; also "Down to Bed-Rock for Water," in *The Literary Digest* for January 19.

□ By JAMES A. TOBEY '15, an article on "Nutrition," in *Medical Times and Long Island Medical Journal*, for January.

□ By WILLIAM W. DRUMMEY '17, supervisor of architecture of the Boston School Committee, a series of five lectures on the economics of architecture, delivered in the School of Architecture, M.I.T.

□ By JOHN W. BERETTA '23, an article in *Southwestern Aviation*, February, on "Wings Over the Missions."

DEATHS

□ DWIGHT PORTER, Professor Emeritus, February 26. (See front section.)

□ LOUISE M. TEAD (Mrs. Edward S.) '80, January 29.

□ WILLIAM L. BRAINERD '86, October 1, 1934.

□ CLARA M. CLARK '92, December 30, 1934.

□ WILLIAM A. GROVER '97, September 1, 1934.

□ FREDERICK M. ROBERTSON '98, January 29.

□ ARTHUR A. JACKSON '02, February 6.

□ CHARLES H. STEBBINS '04, February 1.

□ FRANK S. DANFORTH '07, December 5, 1934.

□ CHARLES E. BRITTO '21, October 24, 1934.

□ RODNEY G. PETTENGILL '22, January 31.

□ GUS E. DANIELSON '23, December 9, 1934.

NEWS FROM THE CLUBS AND CLASSES

CLUB NOTES

M.I.T. Club of Northern New Jersey

This Club, the newly-arrived infant organization of the alumni clubs, made its *début* at a banquet on March 15, held at the Down Town Club, Newark, N. J. President Compton was enthusiastically greeted by New Jersey Alumni and he, in turn, welcomed the new club into the Technology family circle.

The charter from the Alumni Association was presented by Charles E. Smith '00, President of the Association, who also discussed the activities of the new club in best serving the 1,000 Alumni in its territory. Other speakers included Dr. Frank B. Jewett '03, President of Bell Telephone Laboratories and Vice-President of the American Telephone and Telegraph Company, who welcomed Dr. Karl T. Compton, President of the Institute, and Alfred T. Glassett '20, President of the Technology Club of New York. Allan R. Cullimore '07, President and Director of the Newark College of Engineering, contributed much to the enjoyment of the evening as the very able toastmaster. Music and entertainment were under the direction of William J. Orchard '11, President of Wallace and Tiernan, Inc., and cheer leader extraordinary.

Matters of organization and program will be discussed at a smoker which will be held at the Down Town Club during the middle of April, detailed notices of which will be mailed. Pending the selection of a permanent organization, Club matters are being carried on by a Steering Committee, consisting of J. Frank Maguire, Jr. '17, Chairman, Winfield I. McNeill '17, Secretary, William J. Grady '22, Treasurer, Everett W. Vilett '22, Henry J. Horn, Jr. '22, and C. A. Clarke '21.

The Membership Committee has endeavored to contact personally every alumnus in the northern New Jersey district. Many residents list their New York business addresses with the Alumni Office and may have been inadvertently overlooked. Any interested alumni who have not received notices of the Club's activities are requested to communicate with William J. Lutz '23, Chairman of the Membership Committee, 112 North Walnut Street, East Orange, N. J.

Technology Club of Panama

Winds from the northwest, blowing nearly all the time, sometimes gusty, often annoying, generally monotonously steady and strong, are characteristic of the "dry season" here. From January to April, we may expect little or no rain, fair, clear

weather, and these almost constant winds. Our doors and windows are closed most of the time to keep papers from blowing about and to keep the dust of "Albrook," the Army Aviation Field, from settling all over everything. Leaves turn brown, grass becomes seared, and the ground becomes very dry and crackled. On the golf courses of the Isthmus the greens are watered, and constant attention is necessary to keep them in condition. Good scores are made because the ball goes a long way, bouncing along on the hard ground, and the dubbed shot gets distance it would not otherwise get in the rainy season. Before the ground gets too dry and dusty, many people make trips to the interior of Panama. As far as Soná, 200 miles from here, the road is always excellent. From Soná to David, about 100 miles farther, and near the Costa Rican border, the road is not so good but is being improved all the time.

A local paper has printed the exports and imports of the Republic of Panama for 1934. The total value of products exported is given as a little over \$3,000,000, about 90% of which goes to the United States, and consists mainly of gold, 10%, coffee, 1%, cocoa, 16%, and bananas, 60%. Despite a heavy protective tariff, according to the article, Panama imported, principally from the United States, over six million eggs, a half million kilos of potatoes, a half million kilos of beef, and nearly \$30,000 worth of chicken.

In *Time*, December 31, there is an article which stated: "On his 88th birthday last week, Ambrose Swasey appropriately received a planet for a present." *Nova Herculis Swaseya*. Ten years ago Ambrose Swasey and the late President Stratton made a trip through the West Indies and stopped over in Panama for several days. The Club gave a luncheon in their honor at the Tivoli Hotel on February 13, 1925, described and illustrated by a photograph in the April, 1925, number of *The Review*. Comparing the photograph taken then and the one shown in *Time*, Ambrose Swasey has changed little in the last 10 years, and is apparently as active now as he was when we met him.

The other day I received a letter from Lieutenant John F. Gamber '31 (West Point '23). He is stationed at Fort Amador, C. Z. There are about 45 Technology men on the Isthmus and of this number about one-third are graduates either of West Point or Annapolis.

In 1928, returning to the Canal Zone from a vacation in the States, I sailed from New York on the Panama Railroad Steamer *Cristobal*, and found my cabin mate to be Major William E. R. Covell '23 (West Point '15), who had just completed his service in Washington as assistant to the Engineering Commis-

sioner of the District of Columbia, and was on his way to California by way of the Canal. In *Time*, January 21, is an article titled "Peace from the Potomac?" in which the parties directly interested in the solution of the disputed New York City power contracts mentioned, and brought into prominence, the "Washington Plan," a successful scheme settling an old, long-disputed difficulty between the Potomac Electric Power Company and the District of Columbia. Credit for originating this plan which brought "peace on the Potomac" is given to Major Covell, now assistant engineer of maintenance for the Panama. I was agreeably surprised when Major Covell returned to the Isthmus as head of the very division in which I work, and we have renewed the friendship started on that pleasant and interesting trip on the *Cristobal* in 1928. Major Covell entertained President Compton when he passed through here last year; and he has a close and personal interest in all the Technology men on the Isthmus. — Malcolm S. Stevens '34 tells me that Raymond Jewett '34, I, is now employed by the United Fruit Company, as radio engineer, and is located at their Tropical Radio Station, near Old Panama.

The following appeared in a local paper on January 16: "By command of Major General Harold B. Fiske, Lieutenant Clarence Renshaw, Quartermaster Corps, was named Panama Canal Department Tennis Representative yesterday morning. This will be in addition to Lieutenant Renshaw's other duties. The Lieutenant is one of the foremost tennis players on the Isthmus. . . ." On January 24 we read: "Yesterday evening Lieutenant Renshaw, of Corozal, and Luis Gomez, of the Chase National Bank, played a very interesting match in the Omphroy's Tennis Tournament at Mr. Omphroy's tennis court at Rio Abajo, and they both played a very well-balanced match, Gomez yielding to Renshaw, 6-2, 6-2. Gomez has a very free style and open driving, but he was bettered by Renshaw who showed much more steadiness. . . ." James P. Eder '34, one-time Captain of the Varsity Tennis Team, played Jack Maduro. Eder lost this match, probably because he is not acclimated. When he gets accustomed to playing in the tropics, he will rank with the best of them.

On February 8 came this notice regarding the transfer of Major Robb '21 from the Canal Zone: "Major Holland L. Robb, C.E., is ordered in the National Guard Bureau effective upon arrival in the United States, assigning him to duty in Washington, D. C., in the Office of the Chief of the National Guard Bureau, effective upon completion of his tour of foreign service." — MEADE BOLTON '16, *Secretary*, Box 23, Balboa Heights, Canal Zone.

Technology Club of Central Ohio

A mixed party of Tech Alumni, their wives, and friends, gathered at the University Club in Columbus on the evening of February 15. A splendid dinner was served and later the Technology movies and one reel of the Edgerton high-speed movies were shown. Attendance was exceptionally good, several out-of-town Alumni being present. An informal election of officers resulted in the selection of Lasley Lee '10 as President and Bruce M. McDill '18 (162 West California Avenue) as the new Secretary.

The following alumni were in attendance: Robert A. Allton '13, John H. Babbitt '17, Benjamin Beale '25, James H. Blodgett '20, Thomas R. Lathrope '11, Lester C. Lewis '22, Robert R. Litehiser '19, Bruce M. McDill '18, Edmund S. Manson, Jr. '97, A. L. Palmer, Jr. '11, Clarence E. Richards '18, Charles Stewart '34. — JAMES H. BLODGETT '20, *Retiring Secretary*, 1982 Stratford Way, Columbus, Ohio.

Technology Club of Paris

A meeting of Paris Alumni, held at the University Club on January 23, opened with the reading of the report of the minutes of the 176th meeting of the Alumni Council. General discussion followed in which it was suggested that something be done to assist French boys desirous of obtaining an education at M.I.T. A circular letter is to be sent out to members of the Club asking for a direct response so that we may know how feeling stands on this matter.

Present at the meeting were: K. B. White '20, L. T. Forbes '14, S. J. Henriksen '22, George J. Leewitz '23, F. M. Didisheim '22, Gelett Burgess '87, E. A. Baldwin '96, T. T. Miller '22, Welles Bosworth '89. A cold prevented the Secretary from attending. — GEORGE W. BAKEMAN '13, *Secretary*, Rockefeller Foundation, 20 Rue de la Baume, Paris.

Technology Club of Lower Ontario

At the request of Professor Locke '96, Henry H. Tozier '96 arranged a dinner meeting at the Granite Club in Toronto, February 19, to sound out Technology men in this vicinity on their interest in the reorganization of the Club. Out of a possible 37, 17 turned out enthusiastically.

After an excellent dinner, Mr. Tozier was elected Acting Chairman; E. H. Woodworth '97, Acting Secretary. A summary of previous meetings was given by Mr. Tozier, and a general discussion was carried on and suggestions made by all present for future activities, including quarterly dinner meetings, a golf tournament, fall picnic, a ladies night, and so on. Contact will be maintained with the University of Toronto and efforts made to develop an increased interest on the part of likely students to continue their studies at Technology. In connection with this propaganda, we plan to show moving pictures of Technology activities at a later dinner meet-

ing, and invite some of the interested students. We understand that Professor Hardy '18 intends to be in Toronto in March, and we look forward with much pleasure to having him with us.

The following officers were elected: President, Thomas L. Gledhill '26, Consulting Geologist; Vice-President, John S. Keenan '23, Canadian General Electric Company; Secretary-Treasurer, Bernard H. Morash '12, United-Carr Fastener Company; Executive Committee, Henry H. Tozier '96, Canadian Kodak Company; Albert D. King '32, Federal Inks, Ltd.; Charles W. Sampson '29, Samson-United Company, Ltd.

In addition to the officers, those attending were: Louis B. Black '14, Earle C. Fairbrother '20, Carroll R. Harding '29, Ewart Hurst '22, David S. Johnston '26, Strathy R. MacKellar '12, D. C. Nickle '27, Henry C. Patten '08, David D. Peene '29, David P. Rogers '15, E. H. Woodworth '97. — BERNARD H. MORASH '12, *Secretary*, United-Carr Fastener Company of Canada, Ltd., 137 Wellington Street W, Toronto, Ont.

Technology Club of Central Pennsylvania

Thirty members were present at the January meeting of the Club, held at the University Club in Harrisburg on Friday, the 25th. Considering the amount of snow which had piled up during the previous week, this meeting was surprisingly well attended and attests to the interest of our members in Institute affairs.

Charles E. Smith '00 was our guest speaker for this occasion. Your Secretary went to the railroad station to meet him, and after accosting two or three dignified old gentlemen, only to be assured that they were not Mr. Smith, gave up and went to the University Club to announce that Mr. Smith had been inadvertently delayed. He arrived in time to find a young-looking fellow surrounded by the club members and to discover that, after all, the members of the Class of '00 are not so old as he thought. (Possibly Mr. Smith was an infant prodigy.)

After an enjoyable dinner, Mr. Smith gave an interesting review of affairs at the Institute, and wound up his talk with some of his experiences in railroad work. It was enlightening to get some first-hand information on streamline trains from the railroad man's point of view. Mr. Smith had brought some films showing the advance in the railroad art. "The Iron Mule," a movie of one of the first trains, was an amusing contrast to a film depicting the Burlington *Zephyr*, the last word in railroading. The evening closed with the showing of some films of the new "airflow" cars.

The following members were among those present: Ralph E. Irwin '09, Frank A. Robbins, Jr. '02, P. E. Tillson '06, Farley Gannett '02, Francis Thomas '17, E. D. Clark '33, E. J. Mink '22, A. B. Newton '31, A. L. Hesselschwerdt, Jr. '31, J. R. Henderson '34, Sidney A. Whitt '34, R. W. Morgan '33, L. S. Morse '96,

L. O. Buckner '21, John P. Connelly '28, B. J. Stevens '23, Emil T. Neubauer '33, W. S. Galazzi '33, Dr. A. A. Berestneff '31, Neil E. Hopkins '33, G. L. Hickey, Jr. '31, J. R. McCaa '32, C. J. Walton '14. — MAURICE W. DAVIDSON '26, *Secretary*, 210 Pine Street, Harrisburg, Pa.

Technology Club of Cincinnati

On January 23 the Club met for the annual meeting and election of officers for the coming year. This date was chosen because, following a series of letters with Professor C. E. Locke, we found that it would fit in with plans of C. E. Smith '00, President of the Alumni Association. We collected between 50 and 55 of our local members at the Cincinnati Club and had a dinner which developed rapidly into a "cross-room" bantering party, in which nearly every one took part more or less hilariously. J. Stanley Rafferty '22, County sanitary engineer and retiring President, finally restored a semblance of order and with difficulty put through a short business session.

The Nominating Committee presented its list of nominations and at the same time ordered nominations closed in the usual steam-roller method. There is this to be said about that committee in contrast to a number of others: they had at least 24 hours in which to deliberate on this arduous task. The slate presented and elected with acclaim was: President, Dr. Albert P. Mathews '92; Vice-President, Howard B. Luther '08; Secretary, Stuart R. Miller '07; Treasurer, Oliver L. Bardes '21. It seems that the Committee felt that regularity of attendance at our weekly Technology luncheon should be rewarded in this manner.

When called upon for a report as Treasurer, Bardes refused to present one, fearful that any balance in the Treasury would be raided immediately. (He has been the Club Treasurer for a number of years, and some felt that he should have presented a cumulative report.) The Secretary made a brief report on the several boys who have held the local scholarship, and, with data from the Institute, was happy to state that all of these boys had made splendid records in the years during which they had been in Boston.

Having disposed of these important matters, the President presented C. E. Smith '00, who said that he was making his maiden appearance before a mid-western alumni group. If he keeps up the quality he demonstrated here, other groups do not need to worry when they can get him for their meetings.

Mr. Smith, being a railroad man, thought that it might be well to have a little atmosphere, and brought with him a movie reel of one of the new high-speed trains and also a contrasting reel showing the old De Witt Clinton train. As we were going to have these movies, we made arrangements with the Institute to show the high-speed pictures recently made there. Those of us who have read *The Review* — and this is a goodly proportion of our local group — had seen some sections of these pictures which have

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been published, but it was much more interesting to see them in motion. Jack Cochrane '23 presided, as usual, most gracefully (perhaps this should read graciously) at the projector. We seem to have gotten away from our report of Mr. Smith's talk.

We have heard other reports of Technology in the recent years, but all agreed that the information which he gave us was quite different and added greatly to our previous experiences. Those who have been out for some years could hardly recognize the Institute. One of the points which made the strongest impression was the fact that so many of the faculty are now being chosen from the world at large, and are bringing in more of the outside viewpoints. Not that the former students who have been on the faculty have not been efficient, but the modern, complicated conditions of life, not only in education, but in all fields, require the broadest possible leadership. After having given us a comprehensive insight into the affairs at the Institute, Mr. Smith spoke most interestingly of railroad developments and problems. Altogether, this was one of the best meetings we have had for some time and was quite different.

We are glad to have Colonel Henry M. Waite '90 back in Cincinnati again. He is heading up one of the largest efforts in connection with employment placement yet to be attempted and seems to feel that this work is along lines which will prove of great value and may be copied in other industrial centers. Don't forget that we meet for Tech lunch each Tuesday in the Lounge Café of Hotel Gibson. — STUART R. MILLER '07, *Secretary*, 2210 Auburn Avenue, Mount Auburn, Cincinnati, Ohio.

CLASS NOTES

1883

In a recent newspaper we read the following: "Horace Gale is receiving congratulations from many quarters as chairman of the Massachusetts Billboard Law Defence Committee, which has scored a notable victory, after a ten years' legal battle with the combined outdoor advertising companies of the country. This Committee, representing many state and national organizations, has been backing the defense of the Massachusetts law restricting billboards, against the united assault of the bill posters, who claimed that it violated the Constitution of the United States. Last week's decision of the State Supreme Court, strongly upholding the constitutionality of the law, ends the long-drawn-out litigation successfully for the defense. . . . The case has attracted nation-wide attention, because whatever Massachusetts can do under the Federal Constitution, other states can do likewise, and our law is now likely to be widely copied. . . ."

Our Horace has been chairman of this committee from the beginning and has been the power plant of these activities. With him are associated representatives

of 34 organizations, state wide and nation wide. Some time ago a *résumé* was sent out by the committee giving, in short compass, an historic view of the labors and successes of the committee. From this we learn that their first victory was won in 1918 when the people of Massachusetts ratified, by the largest majority given any of the numerous amendments then submitted to the voters, the amendment that: "Advertising on public ways, in public places, and on private property within public view may be regulated and restricted by law." Horace also represents the Massachusetts Federation of Planning Boards. — HARVEY S. CHASE, *Secretary*, Bridge Street, South Hamilton, Mass.

1885

By the time this issue is published the folks down at Wellfleet will be gunning for clams, trolling for lobsters, and taking out extra insurance against the arrival of our notorious Class to celebrate its coming of age! Owing to a typographical error, made by the Secretary, the tryst was announced for Thursday, Friday, Saturday, and Sunday, June 21, 22, 23, and 24. It seems that the official's mathematics were faulty. The days of the week were all right, but the dates should have been June 20, 21, 22, and 23.

Now, as you know, the 50-year class is expected to show up in all its dignity on Commencement day, probably for the purpose of being honorably discharged, and with clean bright faces we sit up in the front seats to give the whole show a touch of class such as only the '85 Class can give. Commencement day comes on June 4, and as we were the first class to institute these five-year reunions, we have had some experience with the weather early in June. So, to insure genial temperature and weather for comfort, the reunion date was set as late in the month as possible and we are only asking those nearby, who can conveniently come, to attend the exercises on June 4. A little later a complete program of both events will be issued.

The reunion at Wellfleet will be informal as usual. We shall have the whole place to ourselves and can do as we please. If in your dotage you have developed any odd little whims, they will not only be respected but encouraged. You can sleep as late as you please or go fishing at five A.M. with 'Ras Worthington. Remember that Dave Baker, the patron saint of the town, will be the *magnum Gazabo* of the festivities, and he is an easy boss. You will see a much bigger crowd than you expect, and the reunion will be a memorable one, even for '85! — ISAAC W. LITCHFIELD, *Secretary*, 163 Franklin Street, Quincy, Mass.

1887

From Duxbury Frank Brett writes that in addition to the exercise he gets in sawing wood and shoveling snow he is working on an ERA Project Planning job, State Roadside Beautification, having the southeastern section of the State to work on — the political situation is apparently waxing warm down in the

town of Kingston these days. George Sever announces that he is back in the game again after a three-year respite, and is running again for the office of Selectman and Board of Public Welfare. The event is scheduled to be run off on March 2.

Winthrop Cole informs me that he and Ben Lane were the only members of the Class of '87 to attend the Boston Alumni Dinner in February. However, the Class has never bulked very large, numerically, at these functions. N. P. Ames Carter is probably in the Southland at this writing, where he intended to spend some little time in Florida. Blake and W. R. Thomas were also in Florida at last accounts, in that Mecca of perpetual sunshine known as St. Petersburg. Paradoxically as it may seem, some friends of mine wintering in the aforesaid paradise, hastened back early in January to the land of fur coats and oil-burners at top speed. At last reports they were still trying to get thawed out.

The Secretary was greatly pleased to receive a letter from Arthur R. Nickels, whom we have not seen for years until he dropped in on the Class at its Annual Dinner at the Parker House in June, 1931. He refers feelingly to our worthy Class Treasurer and the concoctions for which the latter is justly famous, to which the writer adds a fervent "Amen." George always was a "good mixer." None better ever negotiated the famous "Institute Stairs." May his shadow never grow less, but this is a digression. To continue, Nickels adds that he closed his career in the West in December, 1930, starting in 1890. He is now spending his winters in Bath, Maine, and his summers in his old home town of Cherryfield. He extends his best wishes to the members of the Class and hopes that they will look him up when traveling in the above localities. — NATHANIEL T. VERY, *Secretary*, 14 Currier Road, Lynn, Mass.

1888

Although we have 92 names and addresses on our class roster, only 32 live within 50 miles of Boston and only 22 of these answer letters, so when nearly 50% of these turned out to the Boston area Alumni Dinner of February, 9 we "patted ourselves on the back," especially when we saw the numbers present from the three or four classes following ours. Those present were: Bridges, Buttolph, Cole, Collins, Conner, Ellis, Horn, Runkle, Sawyer, and Thompson. Webster was in New York, Wood was in the South with Mrs. Wood, Williams was out of town, and Dearborn, Bates, Faxon, and Cheney sent letters of regret. Conner won the "long-distance gold medal" by coming from Exeter, N. H., and Buttolph won the "long-distance silver medal" by coming from Providence, R. I. Billy Dearborn wrote from Sandwich, Mass.: "Many years have passed since I have seen any '88 men from around Boston and it would be a great pleasure to see them again. Any of you motoring down to the Cape do stop in on me for a bit of welcome."

1888 Continued

John Runkle is spending the winter at his Duxbury estate, moving out of Cambridge just as your Secretary moved in, much to his sorrow. Ralph Sweetland joined the ranks of the "hole-in-ones" at the Framingham Country Club late in the fall. He also has been elected President of the Natick Hospital. Francis Laurens Vinton Hoppin, one of the most famous of the many famous architects of our Class, celebrated his silver wedding anniversary in Florida this winter. Henry Bates, another of those famous architects, planned to go to the Alumni Dinner but about two weeks before he had a bad fall at his farm, cutting his face very badly, and the stitches required could not be removed until the day before the dinner, so that one of our regular attendants was missing. John G. Faxon of Fitchburg writes that the fates decided against his coming to the dinner but, joyful news, in the summer (meaning June undoubtedly) he thinks the fates will treat him more kindly. Let us hope so.

Dr. Frederick H. Safford, from whom we have not heard recently, is now at the University of Pennsylvania. — Santiago Fortuny André, who studied Civil Engineering with us during our sophomore year only, but who will be remembered by many, passed away recently. He had not been heard from since 1886. James S. Newton, who took Architecture with us during our junior and senior years only, has also passed away, according to information received by the Alumni Association.

Your Secretary goes back to Chebeague Island, Maine, about the middle of April till the middle of December. He spent his first summer there 50 years ago in 1885 after our freshman year. If you want to rest, play golf, fish, swim, hike, motor, sail, row, dig clams, play tennis, dance, go to clambakes, play contract, and see the best moving pictures, come down to the Island during July or August. — B. R. T. COLLINS, *Secretary*, 52 Garden Street, Cambridge, Mass.

1889

Frank Hobbs was the only member who went to the Alumni Dinner. This may be because Frank is the only member left who has a car (the Secretary isn't sure about this). Anyhow since what the Government calls the "present emergency" (now six years old) has been in force, the Secretary hasn't run one in winter and so finds the Walker Memorial somewhat remote on cold winter nights. However, we can be grateful that our numbers are intact and by the time this is printed we shall, emergency or no emergency, probably have again observed our frugal but enjoyable Annual Dinner. If the deal can be put over, we will this year integrate another observance with the General Reunion on June 3, when the walking, we hope, along the Esplanade will be better.

The following life-saver arrived from William Lewis: "My wife and I started in our auto on our great adventure on January 17, just before the bad spell of weather arrived in New England. We

started just as the snowflakes began to fall and before reaching New York we had three or four inches of snow and then slush. We left New York with the thermometer 10 above and had a very cold ride to Washington. As we entered the city, it began to snow again. In the night it turned to rain and all day in Washington we had rain, slush, and fog so we saw little of the city. Our route took us through Richmond and Petersburg to Suffolk, Va. Here we visited on a real farm out in the woods, where they do all their own work. The day we were there they slaughtered 24 hogs, about 3,000 pounds, for market. The technique was very interesting if you like that sort of a thing.

"After leaving Suffolk, we moved along rapidly through Columbia, S. C., Augusta and Waycross, Ga., Thomasville and Tallahassee, Fla. Here I tried to call on Nathaniel Brewer, but was much disappointed to find him out. From here we ran along the gulf coast through Pensacola, Fla., Mobile, Ala., and Biloxi and Gulfport, Miss., to New Orleans. By this time the weather had improved so it was like a June day in Falmouth. We stayed a week in New Orleans and about the city. They have a new, large, and elegant airport, Shushan, on the shore of Lake Ponchartrain. The city has reclaimed miles of lake front for a park which will make a wonderful resort for the city in the years to come. Of course, I went out to see the new Mississippi River bridge. This is noted because of its deep foundation in the river silt. They went down 170 feet from mean low water in an open cofferdam. Also it is unusual because of its long approaches made necessary by the flat country in which it is built. The bridge is to carry two railroad tracks and four lanes for autos. It has a clearance of 135 feet above high water of the river and the bridge and approaches extend for five miles. A marvelous undertaking is their waterworks system. Here they take the muddy river water, send it through the works, and when it comes out it is as pure as any in the United States. We took a side trip to Hammond, La., a small town, 72 miles north of New Orleans in the strawberry-growing country. From there we drove over to Baton Rouge and inspected the new two- or three-million-dollar State Capitol Building built by Huey Long. It is surely a magnificent building and worth a visit. The time we were there Huey had 600 to 800 soldiers guarding the place. Everywhere you turned you ran into a guard. It was odd to see, as you stepped out of the elevator at the 28th floor, two soldiers sitting at either end of the corridor with their guns in their laps, tin hats on and all the fixin's. It looked like a movie show.

"The concrete roads all over the state are excellent. In spite of all his antics we have to thank Huey for these roads, the airport, the capitol, and many other first-class projects. The only trouble is, who will pay the bills? We left New Orleans, crossing the river and running through the sugar-cane country with its

flat fields of black soil. At New Iberia we stopped a while to make side trips. One was to Evangeline's grave and the oak which stands beside the Teche where she rested as Gabriel, unknown, passed by. Out of town a little way we went down 800 feet into the Jefferson Salt Mine, where they are mining rock salt with an electrical shovel. Also near here is a sulphur mine where pure sulphur is obtained by pumping hot water into deep wells and then, after it has dissolved the sulphur, pumps it up again and evaporates the water, leaving the pure sulphur. Moving along again we came to the rice fields. Here the soil has changed to a light gray clay. The rice is raised on the flat field onto which water is pumped. The clay is impervious and holds the water. I saw at one place a modern rig for drilling for oil. They were down about 7,000 feet but had not found any yet. They are still hopeful. It is a great game. It costs 25 or 30 thousand dollars to drill such a well with no certainty of the result.

"Our next stopping place was Barksdale Field, a United States Army Flying Field. This is a very large and new modern field. The reservation is five miles wide by ten miles long. They have a large number of handsome buildings for living quarters for the officers and men. The hangars are large, and the equipment is the very last word. The developed part of the flying field is three-and-one-half miles long and three-quarters of a mile wide. The idea is to make this one of three or four main bases of the country. This field is located about five or six miles out of Shreveport, La. The visit over here, we started west across Texas. The character of the country changes again. It becomes hilly, covered with woods more like those in New England, very thinly settled. The road runs for miles through the east Texas oil field. This is a mess of shacks, dumps, gasoline stations, lunch rooms, little poor-looking shops. The oil-well derricks can be seen all about and there is an odor of oil. Altogether a tough-looking district even if it is rich with oil. The money for the oil is certainly not spent thereabouts.

"As you approach Dallas the large, fertile fields appear again, and Dallas is seen across the rolling country from quite a distance. We found this a very modern, fine-looking, prosperous city. Fine hotels, stores, and beautiful homes are plentiful. Fort Worth came next — a very fine city of the same class as Dallas, but somewhat smaller. After leaving Fort Worth the plains of Western Texas begin. The country flattens out, the roads straighten, and you travel for miles and miles without seeing a thing. One of the surprises of this section is to find in these plain towns such fine hotels. At Abilene, Big Spring, and Midland there are hotels that would do credit to Boston. We stopped at Big Spring in a 14-story, modern, up-to-date hotel. It stands in the midst of the plain, yet when you are inside you could not tell whether you were in New York or Boston. From Midland we went to Pecos and turned north to Carlsbad Caverns. The country is growing

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1889 Continued

more and more like a desert along this route. The country is flat; the soil looks poor. For miles there is no sign of a habitation, but it is rather interesting to see it, for it is so different from anything I had ever seen before.

"We visited Carlsbad Caverns. They are certainly wonderful. They are under United States Government control as a public park — very well kept up. The rangers are fine-looking young men and very polite. The caverns are the largest known in the world, and I think they very well may be so. One chamber is 4,000 feet long. At places it is 500 feet high. In one large chamber they serve lunch. In another they have seats for an auditorium for conventions. The temperature is 56° the year round. They are 750 feet to 800 feet deep below the surface. You walk down but there is an elevator to bring you up. Leaving the Caverns we headed toward El Paso. At first the road winds across the desert to the Guadalupe Mountains which are in sight all the time. You pass through these mountains at an elevation of 5,387 feet, according to a United States bench mark by the side of the road. The ascent is so gradual that I had no idea it was so high. At the pass there is an overlook which gives a beautiful view to the west, across the mesa. This pass is just 50 miles from the Caverns and 100 miles from El Paso. You drop down rapidly from the pass and enter at once on the *best desert* I have yet seen. It is just 100 miles to El Paso and you see only five or six little shacks along the road for gas stations. Not a habitation as far as you can see either side of the road. The soil is sandy and very little grows on it. The road is perfect, however, straight as an arrow, and you can try out your car if you wish with no 'cop' around. At last we reached El Paso and here we are. I have been out looking over the Rio Grande River and visited some of the irrigated lands and canals. We have driven so far 4,100 miles. We have had no trouble whatever. The roads are perfect all the way, except over the mountains from Carlsbad. They are mostly concrete, well made and maintained. It seems wonderful. In every city the streets are full of bright new autos. Very few old ones are seen. On the whole, the country *looks* prosperous. I have not gone deep below the surface. Well, this is quite a letter; if you think the fellows would be interested in it, use it as you think best. With best regards to all in '89."

The *Science News-Letter*, February 16, 1935, has the following: "The Bixby collection of 10,000 nut trees, on Long Island, has been acquired by the Government and the trees are being transferred, chiefly to parks and experiment stations." — WALTER H. KILHAM, *Secretary*, 126 Newbury Street, Boston, Mass.

1890

On February 9, 1935, at 6:15 P.M., the Alumni Dinner was held in Walker Memorial. The class was represented by the following men: Harry B. Burley, George L. Gilmore, Frank H. Kendall, George

A. Packard, and Allen H. Rogers. The speaker for the evening was Dr. Compton, and it was a most interesting talk he gave.

The dinner at the Union Club, Monday evening, February 11, was also addressed by Dr. Compton, and he again distinguished himself as a speaker. There were 60-odd men present, including Harry M. Goodwin and the Secretary.

The following change of address has been received: Edwin F. Dwelley, North Hanover, Mass. — GEORGE L. GILMORE, *Secretary*, 57 Hancock Street, Lexington, Mass.

1891

A class dinner was held at the University Club, Boston, on January 19, 1935. The following were present: Bowen, Bradlee, Capen, Colburn, H. I. Cole, Dana, Dart, Fiske, Forbes, Fuller, Hatch, F. C. Holmes, G. A. Holmes, Howard, Howland, Keene, Lawrence, Smith, Thompson, Vaillant, Wilder, Young. After some preliminary events on the third floor, we all enjoyed a fine dinner. The large and satisfactory attendance was at least partly due to the telephone efforts of our Assistant Secretary. And, of course, Barney was there due to the kind offices of H. I. Cole. After the dinner, Gorham Dana showed some very good movies of his trip around the world, and his comments as well as the movies, were most interesting. Gorham gets a lot of fun out of whatever he undertakes, and he and Mrs. Dana had a grand trip, even admitting, as they do, that once is enough. Many of us who have never had the chance would like to try it once. The Secretary mentioned the informal outing last summer at Charlie Aiken's, Webster Lake, and those present seemed to agree that the outing should be continued with an increase in membership. We will have to see Charlie about that.

Harry Young is at the Phillips House (Massachusetts General Hospital) recovering from a broken leg, caused by a fall on a slippery sidewalk. The Secretary called on him soon after the accident and found him in his usual cheerful mood. Probably he hadn't been on his back long enough to get really good and tired of that position. He will have plenty of time for callers, so drop in and say "hello." Incidentally, he is having the same Dr. Allen that officiated in the hospital experiences of Fred Blanchard and Barney Capen, both with a most satisfactory outcome.

A recent letter from Robert Ball to Barney says: "We are all well. My son writes about his interesting experiences in Kenya Colony. He lives on a plateau 5,000 feet up and, though within a few miles of the equator, there are glaciers within a few hours run on Mt. Kenya. The roads are very bad, however, especially in the rainy season.

"I hope things are improving on your side. The pronouncements of your President are very perplexing and one wonders how business men can forecast the future which means so much to trade and development. Over here (England) we are in a slightly better position than last

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year but it is doubtful if we will ever find work for a large proportion of our unemployed. Certain areas in the country, once alive with industry induced by coal mining, are now stagnant and as the best seams have been worked out it is difficult to see how regeneration can possibly be brought about."

Charlie Garrison is now in Santa Barbara. "We have had four days of rainy weather, and before that three days at about 85°. On the fourth we drove to Pasadena and saw Bob's family and then spent the night at Long Beach. Back to Long Beach on Tuesday in the rain, just like a New England spring with showers and the passing cars throwing muddy water over the car and windshield. I have just finished washing my car and it is clouding up again! Navel oranges are very cheap now. A large crop. In shape oblate spheroidal, about 12" polar circumference and 10" equatorial circumference. 15¢ per dozen. Good Arizona grapefruit 2¢ each. But butter is up, 42¢. We have bought the same for 18¢. Everything is green and many flowers. Here we have fine trees everywhere.

"We now have no permanent home out here as Bob is uncertain whether to build or not. We may go to Berkeley for a while when Marg is well enough to go. I hope we can take some trips in the spring. The road up the California Coast from San Luis Obispo to Carmel will be completed, 100 miles or so. You remember last May we went over 20 miles of it from Carmel and thought it magnificent. . . . Remember us also to all the boys and their families who call at the Barney-cycle."

Arthur Alley and his sister returned to California via Havana and Panama Canal. He says he was disappointed in Havana and possibly the trouble was that they didn't get in touch with Charlie Ricker. Those of us who have had a taste of Charlie's hospitality have pleasant memories of Havana.

We were very sorry to hear of the death of Will Fuller's wife in Cambridge on February 9. We extend to him the sincere sympathy of his classmates.

The New York Shipbuilding Company have given up their New York office and Jim Swan has left the company, except for some NRA work. Jim says his daughter has gone back to work in Los Angeles. He writes: "I was down on the Gulf on NRA work for two or three weeks in January; got home the night of the '91 dinner and was sorry to miss it. Was in Galveston, New Orleans, and Mobile, all interesting places. Fortunately the weather was good for the whole trip, except for a rainy day in Mobile, temperature 70° to 75°, and it was fine walking on the beach at Galveston with no overcoat and the surf rolling in, just like a fine day at the shore at home." He sends his regards to "the boys." — Henry Birks wrote Barney from Montreal and mentions meeting George and Mrs. Hooper in Pasadena and visiting their home.

The Secretary's notes on Fred Wilson started something. Without checking up on the last Review, it cannot be stated

1891 Continued

whether Billy Dart has gone Fred one better, but here is Billy's list of present jobs: President and Director, R. I. Tool Company; Vice-President and Treasurer, Morris Plan Company of Rhode Island; Director, R. I. Hospital Trust Company; Director, Dorset Woolen Company; Vice-President and Director, Saundertown Hotel Association, Inc.; Vice-President and Trustee, Emma Pendleton Bradley Home (a hospital for mentally crippled children); Board and Executive Committee, Swan Point Cemetery; Vice-President and Director, R. I. Discount Company; Finance Committee, R. I. Historical Society; Auditor, Providence Art Club; Trustee, Willett Library; Advisory Committee, Home for Aged Women; Board and Executive Committee, Associated Industries of Rhode Island. Who is next in this somewhat unique competition?

Evidently they have been checking class lists at the Alumni office for the new directory. The following are deceased, and all but Lipman were on our "No Address" list: August Lipman, December 31, 1933; Paul H. Tracy, March 29, 1919; Charles A. Dillingham, April, 1929; Thomas H. Curtis, February 13, 1910; Sheridan Plaisted, March 11, 1926; Charles F. Kahnweiler, July 17, 1892.

We now have addresses for the following, formerly "No Address": Henry F. Noyes, 601 Laurel Avenue, Bridgeport, Conn.; Fred H. Briggs, Plandome, Long Island, N. Y.; John M. Joy, 12 Shelly Avenue, Yonkers, N. Y. The following changes in address are reported: Paul W. England, San Diego, Calif.; James Swan, 101 West 55th Street, New York City; Albert S. Gottlieb, Harrington, Del.; Frank H. Burton, 67 Mt. Vernon Street, Boston, Mass. — HENRY A. FISKE, *Secretary*, Grinnell Company, 260 West Exchange Street, Providence, R. I. BARNARD CAPEN, *Assistant Secretary*, The Early Convalescent Home, Cohasset, Mass.

1893

Charles E. Buchholz died December 17, 1934, at the age of 64 years. Shortly after his graduation in civil engineering, he went to the New York Central Railroad where, during his 11 years' service, he rose from rodman to division engineer of the Middle Division. In 1904 he entered the employ of Irish Brothers of Philadelphia, coal operators, and, advancing through various stages, he became Vice-President of the Rochester and Pittsburgh Coal and Iron Company with headquarters at Rochester, N. Y. Later the coal business took him to Watertown, N. Y., where for some time he had his home. In 1920 he joined the George Hall Coal Company of Canada, Ltd., which together with five other corporations was merged into the George Hall Coal and Shipping Corporation of Montreal, in which city Buchholz lived for several years. This company was engaged principally in selling and transporting American coals in the eastern provinces of Canada. At the same time Buchholz was President and principal owner of a coal mining company in Pennsylvania and was associated with other coal com-

panies in the United States. His knowledge of the coal business was utilized during the War when he spent three days a week in Washington assisting Dr. Garfield, the Head of the Fuel Administration. In 1928, ill health forced his retirement from active business and caused him to remove to Saranac Lake, N. Y., which was his home for the next four or five years. He was greatly benefited by the healthful and invigorating atmosphere of this Adirondack Mountain resort so that once more he was able to pick up threads of his business interests, and he went back to Watertown, where he made his home thereafter. In 1900, he married Miss Helen P. Corwin and they had two daughters. Charley Buchholz, the quiet, genial student, was always held in warm regard by his fellow classmates and undoubtedly this was true of those who came to know him in later life. His last meeting with the Class was at the Thirtieth Reunion in 1923, when he and Mrs. Buchholz came from Montreal to take part in the three days' festivities at the Wianno Club on Cape Cod.

Edward B. Carney's recent election as President of the Lowell Institution for Savings is of peculiar interest in the history of Massachusetts savings banks, as it marks the beginning of another epoch in that institution with which the Carney family, during three generations, has been most intimately identified for more than a century. James G. Carney, grandfather of Ed Carney, started the bank in 1829 and for 40 years served as its Treasurer until his death in 1869, when he was succeeded in that position by his son, George J. Carney. The latter was Treasurer for the remainder of his life, and when he died in 1906 his son, Edward, succeeded him in that office, a position which he held until late in 1934 when he relinquished the treasurership to become President. Thus, for 106 years the honorable course of the Lowell Institution for Savings, among the oldest savings banks of the country, has been wisely guided by the Carney family.

Miss Katherine Emery, daughter of Mr. and Mrs. James A. Emery, takes a leading part in "The Children's Hour," noteworthy among the plays of the New York stage during the past winter and one which, in theatrical circles, is considered one of the greatest successes. The *Literary Digest* said of the play: "Overnight, by the force of its own stature, it has become the most important play in New York. Here is a play that shines with integrity. For two whole consuming acts the First Audience sat, completely silent, held taut by the richness and reality of the tragedy which it describes. There is conspicuous and magic correlation between the author, the producer, and the cast. It is evident that each contributed a positive majesty of sincerity to it, and that all three together determined to make this a play to command the appreciation of its audiences. The bleak story is of two finely reared young women, heads of a private school for girls, whose characters are wrecked and whose enterprise is destroyed by a satanic child, a

poisonous young viper, whose whole disordered life is devoted to cruelty, falsehood, and appalling mischief. The Misses Anne Revere and Katherine Emery play these two broken women tautly, humanly, and with an overwhelming sensitivity. Their performances are so absorbing and flawless that audiences sit before them tense, motionless, and silent, forced to complete attentiveness by what they are saying and the way they are saying it." — James A. Emery, Jr., a student at M.I.T. in the Class of 1938, has the distinction of having been elected as representative of the freshman class on the Institute Committee.

John Solomon is a dealer in cultivated pearls at 607 Fifth Avenue, New York. In a recent letter he writes: "I thought that perhaps you would be interested in knowing that the most beautiful and the most valuable cultivated pearl necklace — most valuable in having been the most costly as well as valuable in intrinsic worth — that has ever been sold has recently been sold by me." Solomon was a pioneer in the cultivated pearl industry and as such has received recognition by the United States Government, the New York Academy of Sciences, the National Research Council, and by British and French scientists. It was in 1906 that he went to British India where, for many years, he was engaged in pearl fishing and the cultivation of pearls by engineering and biological processes developed by him. His amazing and unique exploits in this field have been told from time to time in previous issues of *The Review*. It is of interest to note that, notwithstanding the vicissitudes of the World War, which put him out of the business for some years, and competition by the Japanese, Solomon is once more back in this industry to which he has devoted so many years of painstaking work and in which his published scientific researches have received distinguished recognition. — Percy H. Thomas, for the past year, has been connected with the Federal Power Survey at Washington, D. C.

Charles G. Waitt, who while back in America for a short visit in the early fall prepared for the November Review an interesting account of European conditions, returned to Europe in October to resume his work as continental correspondent of the *London Times* and other papers. After extended wanderings through France, Poland, Czechoslovakia, Roumania, Hungary, Yugoslavia, Italy, Austria, and Germany, he returned to England in December for a brief visit with friends during the Christmas holidays and to prepare articles for the press from the material gathered while on the continent. We quote from a recent letter in which he describes, at some length, conditions as he found them in Germany and in England: "The writer spent some time in Berlin five years before the War. It was a prosperous, bustling capital, vital and gay if in a somewhat garish way. Today it is like a clockwork from which the mainspring has been removed. Hard times are in part responsible, also in part the virtual disappearance of the Jews. With-

Plan to attend Alumni Day at M.I.T. on June 3, 1935

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out its broad stratum of middle-class Jews, Berlin is scarcely to be recognized. Hustling, rather blatant, cheerful, moderately prosperous, they were once the backbone of the theaters, the *cafés*, and those enormous restaurants like Kempinski or the Rheingold, where the surroundings are luxurious, the food and wine good and cheap. Such places know them no more. Not that they have gone away, only the wealthy can afford to do that. They have simply withdrawn themselves from circulation. Many of them, I am assured, are carrying on their vocations at home, in many cases retaining their Christian business connections. Here in 'Merrie England' we find the contrast very marked. England is definitely on the up-grade. Her tradesmen are not grumbling; business is good in the stores which are ablaze with Xmas trimmings and good cheer. The people who are crowding the streets and stores are buying and all seem cheerful, good-natured, and gay. Truly this a pleasant contrast to the cities of Mid-Europe and Germany."

Cadwallader Washburn, the artist and writer, whose permanent address is Norlands, Livermore Falls, Maine, is rarely at home for long. Most of his life has been given to travel, largely in connection with his art, which has taken him to the far corners of the earth and has involved him in numerous and occasionally thrilling adventures. In January last he reported another "change of address," this new one being "Towers Hotel, Puerto de la Luz, Gran Canaria Islands, Canarias," which, translated, apparently means that he sought a warmer climate than Maine for the winter.

Changes of address: Herbert Armstrong, 1450 San Pasqual Street, Pasadena, Calif.; William T. Barnes, Scranton-Spring Brook Water Service Company, 30 North Franklin Street, Wilkes Barre, Pa.; Charles E. Belcher, 624 Beacon Street, Newton Center, Mass.; Charles C. Brown, 40 Washington Avenue, Waltham, Mass.; James P. Buckley, 1400 Hyde Park Boulevard, Hyde Park Station, Chicago, Ill.; Dr. Martin J. S. Cromwell, Ruxton, Md.; Wilbur F. Evans, Electric Maintenance Company, 297 Atlantic Avenue, Boston, Mass.; Marvinne Gorham, 420 Jackson Building, Buffalo, N. Y.; George Guppy, Procurement Division, P.W.B., Washington, D. C.; Isaiah C. Hanscom, 22 Hanford Place, Caldwell, N. J.; Professor Ervin Kenison, 5 Grove Street, Bloomfield, N. J.; Willis T. Knowlton, 1632 South Van Ness Avenue, Los Angeles, Calif.; Dr. Florence M. Loughton, 37 West 72nd Street, New York, N. Y.; Edmund I. Leeds, 46 Waverley Avenue, Newton, Mass.; Professor Elizabeth S. Mason, 32 Bedford Terrace, Northampton, Mass.; Harry M. Phillips, 616 North 7th Street, Keokuk, Iowa; Lieutenant Colonel Henry L. Rice, Charleston Ordnance Department, North Charleston, S. C.; Harold A. Richmond, 625 Buffalo Avenue, Niagara Falls, N. Y. — FREDERIC H. FAY, *Secretary*, 44 School Street, Boston, Mass. GEORGE B. GLIDDEN, *Assistant Secretary*, 551 Tremont Street, Boston, Mass.

1895

As the Class of '95 has been "out of print" for several months, due to a large number of its members holding out on the Secretary, we joyfully make a reappearance.

The mid-winter dinner of the Alumni Association at Walker Memorial on February 9, brought together a few of the old guard, and while we lacked in numbers, we held our own by our good looks and the smiles that don't wear off. The two Clapp "twins," Gus and E. H., are still holding their avoirdupois. Billy Hall, with his growing family, still retains his wonderful smile. George Defren and Win Parker are just as dapper as ever. Andy Fuller, Tom Booth, our President, and your humble Secretary completed the list. There were eight of us, an octette, and we had a great time swapping notes. The weather was bad and prevented the attendance of some of the more staid.

By the time you read this issue, you will have been advised as to the Fortieth Reunion of the Class, to be held June 1 and 2, at Oyster Harbors on Cape Cod, Osterville, Mass. The dates have been selected to fit the program of the All-Technology Alumni Day. We will refresh together on the Saturday and Sunday, June 1 and 2, and then adjourn on Alumni Day, June 3, to attend our class luncheon and the All-Technology dinner in the evening in Symphony Hall.

You will be able to remain for the graduation exercises the following day, Tuesday, June 4, or return home, as you may elect. We especially announce the date of our most important reunion — the 40th — in these columns with the hope that if, for any reason notices mailed to you may inadvertently go astray, you will immediately contact your Secretary. Remember our short span of life. We want to see all of you. Your presence will help to make the reunion a success and you will remember the good times the remainder of your days. Please reply promptly to all communications. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass. JOHN H. GARDINER, *Assistant Secretary*, Graybar Electric Company, 420 Lexington Avenue, New York, N. Y.

1896

At the Alumni Dinner in Walker Memorial on Saturday, February 9, the following classmates were present: Fred Damon, Bob Davis, Jim Driscoll, Henry Grush, Will Hedge, C. E. Locke, John Rockwell, Lucius Tyler, and Perl Underhill. Joe Driscoll was absent because he had departed for Pinchurst for his golf. Charlie Nevin was also away, having started early in January with Mrs. Nevin on an automobile trip to California, making stops en route in Virginia, Mississippi, and New Orleans. This trip was expected to consume two months or more. Gurney Callan, who is at the Harvard Business School, found himself swamped with a mass of reports and blue books, because the dinner came at the time of the examination period, and he was un-

able to be with us. However he has made a notation on his calendar that he will be with us at our Fortieth Anniversary celebration, June, 1936, in the flesh if he is still on earth, or otherwise in spirit.

Arthur Baldwin has supplied the address of Reg Norris, which is Chateau de Gourdon, à Gourdon (par le Bar, Alpes Maritimes), France, but Arthur says that Reg maintains absolute silence, and does not reply to any communications. His location is off the route of Baldwin's travels or Arthur would undertake to drop in on him. — Herman Hornel is still active in politics and was re-elected Chairman of the Republican City Committee of Boston in January.

Classmates will sympathize with Henry Gardner in the loss of his wife, who passed away in Brookline on January 26. Henry's boy, Frank, is a freshman at Technology this year and is making a splendid record.

The death of Fred Schaller on January 20 was reported last month. Fred was born May 9, 1872, the son of Leopold and Marion Wardner Schaller. He married Susanne Young on October 17, 1912, and the three children were Caroline, born April 13, 1915, Fred, Jr., born January 31, 1918, and Mary Louise, born January 2, 1920. In 1896-1897 he was draftsman and electrical engineer with the Standard Thermometer and Electric Company, in Peabody, Mass. In 1897 he was electrician in the Universal Power Company, Clark and Mutts, and Frank Ridlon Company, Boston. In 1898-1902 he was assistant to the Electrical Engineer of the Boston and Albany Railroad in Boston. In 1902-1904 he was assistant signal engineer of the Lake Shore and Michigan Southern Railroad in Cleveland. In 1904 he was mechanical designer with William T. Wood and Company in Arlington, Mass. From 1905-1914 he was engineer with the Hall Switch and Signal Company at Garwood, N. J. From 1914, up to the time of his death, he was signal engineer with the Interstate Commerce Commission in Washington. Fred followed masonry through the Blue Lodge, Chapter and Council. He was also a member of the Five Points Club in Washington, the Engineers Society, Technology Club, and Parent Teachers' Association. His death occurred rather suddenly of heart trouble. Services were at his old home, 10 Schaller Street, South Natick, on January 24, and interment was in the Glenwood Cemetery.

The Secretary attended the New York meeting of the American Institute of Mining and Metallurgical Engineers in February. Bradley Stoughton was at that same meeting, but no item of news could be extracted from him, and he said nothing of any consequence had happened. The Secretary was able to get Jim Meluish to come to luncheon with him one day in the Engineers Building and there was opportunity to renew acquaintance with Stoughton as well at the same time. Jim is still with the PWA. He has brought his wife and small child up from Colombia and they are living in New York City. During 1934 Jim was senior engineer

1896 Continued

on Governors Island, attached to the Utilities Division of the Post Quartermaster, Second Army Corps Area, and he had work of very diverse nature at Fort Jay, Governors Island, and Fort Wood, Bedloes Island, including the central heating system, sea wall, ferry slip, steel garage, water supply, and sewage. Since Christmas Jim has been in the Engineering Department, in the main central office, on Eighth Avenue, where he is senior engineer, and has been reviewing and estimating projects, mostly along sewer, marine, and highway lines, amounting to one million dollars per week, and they are still going. Jim is in fine health and looking forward to the promise of the future. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

1897

The following tribute to our classmate was sent in by Arthur Hopkins: The death of George Leonard Hosmer removes another of our classmates. His funeral was largely attended by Technology friends and Faculty members. An excellent notice appeared in the February Technology Review, but some points appear worthy of further notice.

Hosmer was always diffident and rarely attended class meetings, yet he was very popular with students because of his patience and readiness to help. One year he was voted the most popular member of the Faculty, to his great surprise and almost consternation. He took a great interest in boys and young men. He was one of the leaders in the Boy Scout movement, was a local commissioner of scouts, and from his knowledge of woodcraft was a wonderful companion and leader in forest trips. Even in his student days he was interested in rifle practice, and he became life member of the Massachusetts Rifle Association and a director of the Boston Revolver Club. He was an excellent marksman and received many prizes.

He took great interest in his ancestry. His research into his family history showed 10 ancestors engaged in the Revolutionary War and five in Colonial wars. He and Mrs. Hosmer spent a happy summer in England looking up the family records and property. An interest in geodesy led to a number of very interesting trips. In 1900 he went to Georgia to study an eclipse of the sun and in 1901 he went to Sumatra, accompanied by Professor A. E. Burton, Harrison Smith, and Gerard Matthes '95. They made a complete circumference of the world on this trip. It was this trip that introduced Harrison Smith to his island empire. The Labrador trip of 1905 followed. After this the Summer School took up his time every summer until in 1911 the present camp in Machias was established under his direction.

You will also be sorry to learn of the death of Carroll A. Capen, who died early this winter. His death was from heart failure following a long illness.

We were glad to hear from Proctor L. Dougherty, that he is still director of the Eyesight Conservation Council in Washington and that he has had interesting contacts with several of our fellow members recently. Harry Worcester called, whose son Henry '32, by the way, is a technical advisor with the Morningside Laundry in Washington. Professor Breed dropped in after attending a Highway Engineers Conference at the National Academy of Science. Proctor also sent numerous cuts that appeared in the Washington paper of Irénée duPont smoking his pipe in a pensive way while attending a conference at the reopening of the Senate Arms Investigation Conference. We feel he is fortunate in being allowed to retain his pipe since the conference is undertaking to show that he should not be making a profit in his business, as it is an incentive to war.

Proctor also reports that while in Philadelphia he met Joe and Wilfred Bancroft at the University Club there. The latter was accompanied by his son — a fine fellow, a true son of his father. He reports both Bancrofts look well and prosperous in spite of the New Deal. — Hugh Orr has come to life, and testified as a lumber expert for the defense at the Hauptmann trial. We had not heard from him for a long time and would be glad to have his present address for the Institute files.

We have not heard from many classmates lately. Send along some news for the next issue. — JOHN A. COLLINS, JR., *Secretary*, 20 Quincy Street, Lawrence, Mass. CHARLES W. BRADLEE, *Acting Secretary*, 261 Franklin Street, Boston, Mass.

1900

The first letter on the reunion has already been sent out and it looks from the returns that a gala time is ahead of us. Whatever plans you make for the summer, be sure to include the reunion. The various committee chairmen are as follows: Transportation, Bowditch; Enrollment, E. G. Allen; Amusements — indoor, Ziegler, outdoor, Draper; Finance, Fitch; Ladies, Russell; Accommodation, Crowell; Toastmaster, Draper; Prizes, Brigham; Photographs, Crowell.

Dave Ellis' little boy, Richard, has turned out to be quite a runner as a member of the crack relay team of Northeastern University. His brilliant performance at the University Club games turned defeat into victory.

A letter from Gibbs follows: "Once in a while I wake up and remember my duties to the Class. Do forgive me. I'll try really very hard next June to be present at the class reunion, when I know of the date, and if it isn't too far away from Boston and too expensive." A brief history follows: "1908-1911, Studied at Episcopal Theological School, Cambridge, Mass. Received degree of Bachelor of Divinity. Ordained as Deacon in June, 1911, by Bishop Lawrence. 1911-1917, Missionary in Oklahoma living at Tulsa and working in other towns. Later Rector of Church of the Redeemer at

Okmulgee, Okla., which I had organized and helped build up. Ordained priest by Bishop Thurston in Tulsa, Okla. in December, 1911. 1917 to March 1918, Assistant at St. Ann's Church in the Bronx, N. Y. Spent much time at Tech Club on Gramercy. December, 1917, was asked by 'Pa' Coburn of M.I.T. if I could go to France and serve in his stead at the American University Union as Director. March, 1918, sailed for France on old S. S. *Chicago*, French line, and served as Director of the Technology Bureau of the American University Union in Paris. Did a fairly successful job for M.I.T. and its men in France. See Tech War Record, "The Technology Bureau." After the War I finally was Assistant at Trinity Church, Boston, under the Rector, now Bishop Sherrill of Massachusetts. May, 1926, went to Paris as Assistant to the Dean of the American Pro-Cathedral of the Holy Trinity, under the title of Canon. Continued in the position to November, 1933. The depression and the loss in value by exchange of the dollar in France forced economies at the Cathedral. I returned to the U. S. Was placed in charge of the Church of Our Saviour, a small parish in East Milton, which charge I still assume with much happiness. While at Trinity Church, Boston, I studied at Harvard University, and in 1925 was given the degree of A.M. I am not married. This is my simple history. I shall endeavor to meet you all at the reunion."

Sperry writes: "I have your advice with reference to our Thirty-Fifth Class Reunion, to be held this coming June. I will bear it in mind, but these are busy days in Washington, and it is not at all certain now whether I can attend all or any of the time, but I will certainly try to do so, if possible. As you may know, I am here as President of the Washington Gas Light Company, affiliated and associated companies, there being seven of them in all, through which we serve the District of Columbia and adjacent territories in Maryland and Virginia. It is most interesting business, particularly these days. Whenever you or any of my classmates are here, I wish you would look me up." — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston, Mass.

1901

The Council of the Alumni Association has voted to replace the All-Technology Five-Year Reunion, with an annual celebration of one day. It was the hope of the Council in doing this that every class holding a reunion would hold it on the week-end preceding this Alumni Day, so that groups attending the reunions could then come to Boston for an All-Technology get-together. This new type of reunion will be held on June 3 and will consist of luncheons for special groups at noon, Open House at Technology in the afternoon, and a dinner at Symphony Hall in the evening, followed by a program of distinguished speakers and a concert by the Boston Symphony Pops Concert orchestra.

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1901 Continued

As next year will be our 35th since graduation and we will certainly want to have a big reunion then, it is a question whether we should attempt to hold one this year. If we do have one, we will want to have it to fit in with the Council's plans as outlined above. I wish all those who would like to have a reunion this year would write me at once, and if a sufficient number are desirous, we will make the necessary arrangements.

Willard W. Dow has been selected to represent the Class on the Alumni Council for the rest of the year to fill the vacancy caused by Dr. Rowe's death. To memorialize the services the late Allan Winter Rowe rendered Technology, especially in the conduct of the athletic and alumni affairs, the Advisory Council on Athletics, of which Dr. Rowe was Secretary-Treasurer for nearly 25 years, is arranging to have a portrait painted of him for presentation to the Institute. Subscriptions have been invited, and sufficient funds and pledges already received to warrant arrangements being made for the artist to begin work. The finished portrait should be ready for exhibition on Alumni Day, June 3.

The Home-Coming Dinner No. 2 (Ltd.) for M.I.T. Alumni in Walker Memorial, February 9, was a very enjoyable affair, and I am sorry more of the Class could not be present. As it was, John F. McGann, Willard W. Dow, Fred W. Connolly, and your Secretary attended, and had a very pleasant evening.

G. Victor Sammet has recently been elected a director of the Massachusetts Mutual Life Insurance Company of Springfield. A clipping from the *Boston Globe* says in part: "Mr. Sammet, President of the Northern Industrial Chemical Company, is a graduate of the chemical department of M.I.T., Class of 1901, and received his Ph.D. in 1904 at the University of Leipsic, Germany. He has served as Chairman of the uniform cost accounting committee of the molded insulation division of the National Electrical Manufacturers' Association."

The members of the Class will be sorry to learn from the *Portland Evening Express* that, in November: "Mrs. Madeline J. Freeman, wife of Frederic W. Freeman, and formerly a professional in high-class stage productions, died on Sunday in her home on the Blackstrap Road, Falmouth, after a long illness. She came to Portland when she married about 20 years ago, and the family home was on Danforth Street, West, where theatrical celebrities frequently were guests. Mrs. Freeman never lost her interest in the theatre after she gave up her career behind the footlights, and appeared in several productions that were staged by the Portland College Club and also coached for amateur presentation.

"Her professional career began when she was a girl in her teens after appearing in amateur productions in her native city of St. Louis and she went to New York City where her rare ability brought her quick recognition. Engagements she filled were in 'The Man from Home,' 'The Witching Hour,' 'Deep Purple,'

'Oliver Twist,' and several others of like class. Mrs. Freeman contributed daily comment on local amusements in the *Portland Press Herald* under the heading, 'Footlights and Films,' for a number of years." — ROBERT L. WILLIAMS, Secretary, 109 Waban Hill Road North, Chestnut Hill, Mass.

1902

A. Eliot Ritchie died in the Roosevelt Hospital in New York on January 23. He was taken seriously ill while attending the Motor Boat Show and was rushed to the hospital. An emergency operation was performed, but he failed to rally. The funeral was held from the First Parish Church in Brookline, Mass., on the 26th of January.

Ritchie was born and lived all his life in Brookline. He prepared for Tech at the high school of his home town. At Technology he took the course in Mechanical Engineering and was a member of the Delta Psi Fraternity. After graduation he entered the business founded by his grandfather, E. S. Ritchie and Sons, manufacturers of Nautical Instruments, in Brookline. Upon the death of his father he became head of the firm, and carried it on until his death. During the War he developed many novel instruments for the Navy and the Shipping Board. During three generations this firm has maintained a fine reputation for high-grade instruments, and has kept abreast of the many developments in its special field. Ritchie has made many instruments for aeronautical work and one of his latest devices was an improved radio direction finder.

Ritchie was married in 1907 to Helen L. Hurd of Brookline, who died in 1925 after a long illness. They had two children, Mabel Louise Ritchie, who is doing secretarial work in Brookline, and A. Eliot Ritchie, Jr., who was graduated from Harvard last year and is now taking courses in Mechanical Engineering at Technology. In 1928 Ritchie married Mrs. William P. Dinsmoor, who survives him. Ritchie is also survived by a brother, John Ritchie, of Chicago and two sisters, Mrs. Austin D. Jenkins and Miss Janet Ritchie.

Yachting and golf were the favorite recreations of our classmate. He had a summer home at Nonquitt, Mass., on Buzzards Bay, and was a member of the New Bedford Yacht Club. His golf was played at the Chestnut Hill Golf Club in Brookline. His winning of the class championship at our 20-year reunion was one of the prettiest golf matches ever seen. Ritchie tied with Sherman for the first 18 holes, well ahead of all others, and they fought it out over 18 more holes, neither ever having a lead of more than one stroke and Ritchie finally winning by that small margin gained on the 35th hole. Eliot Ritchie had the esteem of all who knew him. His virile force and independence of character won him the high regard of all his classmates. He will be greatly missed.

Word has been received of the death of Horace T. Muzzy, who was a special student in Architecture with our Class.

THE TECHNOLOGY REVIEW

Quiet and unassuming, he was little known outside of Course IV but was warmly regarded by the men in that group. For many years he has been a practicing architect in Waterville, Maine. Prior to going to Waterville, he was chief draughtsman in the architectural office of Walter Atherton '89, of Boston. Muzzy was married in 1911 to Emma C. Daggett and had two children, a son, Richard D., born in 1913, and a daughter, Carolyn, born two years later.

Another member of the Class who has passed on is Edwin C. Reeder of Rosiclare, Ill. Reeder had been interested in mining and mining machinery ever since leaving M.I.T. He worked in mines at Butte, Virginia, and Great Falls, Mont., and Midvale and Bingham, Utah. Then, for some years, he was sales engineer for the Allis Chalmers Bullock Company at Nelson, B. C., and Toronto. Following that, he was superintendent of the McKinley Darragh Mine at Cobalt, Ont., and was then at Copper Cliff, Ont. For some years he was sales engineer for the Lidgerwood Manufacturing Company at Chicago, and then became superintendent of the Hillside Flour Spar Mines at Rosiclare. He was married in 1904 to Algenore I. Roehm and had two children, a daughter, Mary E., who was a member of the Class of '28 at the University of Illinois, and a son, Edwin T. Reeder.

The '02 delegation at Technology has had an increase. Wendell Fitch and Alice Hunter are still in good standing in the Class of '36. Young Fitch was a member of the cross-country team last fall, and Miss Hunter was a member of the debating team that defeated Middlebury in the winter. The addition of A. Eliot Ritchie, Jr., is noted earlier and Miss Margaret Proctor, Red's oldest daughter, is working in the Biology Department, following her graduation from Vassar last June. Red's son, Robert, is a freshman at Harvard.

Lewis Moore, Claude Patch, Adrian Sawyer, and the Secretary, made up the class delegation at the dinner in Walker Memorial on February 9. — FREDERICK H. HUNTER, Secretary, Box 11, West Roxbury, Mass. BURTON G. PHILBRICK, Assistant Secretary, 246 Stuart Street, Boston, Mass.

1903

The Class was represented at the February dinner in Walker Memorial by Gould and Cushman. Everybody else who was contacted had other plans, or excuses. It was disappointing after last year's turnout of 10, and the good time we had. This year is our 32nd anniversary, and under the new plan of Alumni Day, June 3, class reunions are scheduled for the week-end previous. Efforts are being made for an unusually interesting and enjoyable program, and a great gathering of Alumni should result.

While it is an off year for '03, the Secretaries would be glad to plan an outing or reunion for the Class if they can know that such a reunion would be welcomed and attended. If any members of the Class, therefore, are planning to be in

1903 Continued

Boston at any time between June 1 and June 8, will they let the Secretaries know as far in advance as possible? Plans will depend on the number showing interest. Further information about Alumni Day, ways to get to Boston, details of the celebration, will be gladly furnished. Also send in your suggestions as to the class reunion. The Secretaries will be glad to get busy. As threatened in last month's letter, the Secretaries have written several members of the Class asking for news, but if you haven't heard from them, don't hesitate to take the initiative, and write in. — FREDERIC A. EUSTIS, *Secretary*, 131 State Street, Boston, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, 89 Broad Street, Boston, Mass.

1905

"I had the good luck to run into George Jones, II, on my last trip to Washington," writes Hub Kenway, II, Boston. "Saw him several times in the Patent Office and had dinner with him and his boy, Bayard, who is in the PWA Housing Division. George is a few pounds heavier and a few hairs thinner on top than when you last saw him, but otherwise he is not slipping."

"George had just seen Frank Payne, XIII, and Bob Morse, II, the day before but I missed that reunion. Ran into Bill Green, VI, in New York on my way back. He's very conveniently located on Park Avenue just below the station and next door to good cocktails. — Louie Killion, I, isn't lost. He's located here in Boston (49 Crawford Street, Roxbury). I've just filed a patent application for him on a movable plaster-wall structure. Lou was for many years the King of metal and glass partition walls and now he is about to conquer new worlds."

What good luck! Here's Frank Payne's description of the reunion. "Had quite a party in Washington last week at Bob Morse's. It seems that George Jones was in town on business and Bob invited us all up to meet his wife. Haven't seen Bob for ten years at least and is he young looking, and is his wife delightful! It takes these young fellows to pick beautiful women. By the way, Bob looks like he is running a race with John D. Rockefeller for baldness. Judging from his lovely apartment, I think he is running a race with John D. financially. We had a mighty nice visit and some of the old photographs of the boys of '05 were brought out and laughed over."

"Before coming back to Chicago, I ran up to Westerly and had a visit with Ralph Segar, VI. If I hadn't been away for two weeks since the first of January, I certainly would have run up to Middletown, but after two weeks on the road you know what the laundry looks like and how good your home looks to you."

"The *Queen of Bermuda* has always been a meal ticket for the Crane Packing Company, and is very largely equipped with our material. The fact that you found no vibration in the engine room should have indicated to you that the condensers equipped with Crane Packing were giving perfect service. The *Queen Mary* will do

us further honors when she is put into service. If I don't go to Europe this summer, I am going to run down to the '05 reunion and see you all."

Walter Bent, X, generously provides a good story whenever requested. In December he wrote from Harrow-on-the-Hill, Middlesex: "I may be able to go to the Reunion if I can fit it in with my plans for the year. I am about due to go to U. S. A. for a visit; it is four years and over since I was home. At any rate, I am sending my second and third sons (19 years and 17 years) to America for a month's trip. They haven't been back since I moved the family to England and I want them to see things American now. So they will be going to New York, Rochester, Boston, Washington, and so on. As they may try for advance degrees at Tech (when they finish at Cambridge University), I want them to look M.I.T. over carefully. My oldest son (25 years old) is working in Rochester, N. Y., so my family is separated and until it all gets back home again, I am afraid that in the future it will be split still more."

"I am anxious to see what my old classmates look like now after 30 years. It will be interesting for me to see what sort of old men Folsom, X, Fisher, X, and others have changed into."

"I have just returned from a trip to Germany. While I was in Berlin the 'Winter Help' drive was on. A lot of my associates and I were sitting around a table in the Bristol bar when in came General Goering with a tin box, collecting. He came up to our table and held out his box to each of us for our marks. I rather liked his face. Goebels also came, but his box was not so popular."

"We have had a very bad month of weather in London. Last night I got caught in a fog and was two-and-a-half hours in motoring only eight miles."

Doc Lewis, X, to whom was referred the matter of the boys' entertainment in Boston, wrote Bent: "... If you do let them see me, I want you to be careful to warn them against my prejudices and narrowness of mind. Unless properly thus forewarned, you will find that I have sold them Course X and particularly the Practice School — lock, stock, and barrel. Indeed, it may be wise for you not to let them see me at all because there is great danger that I will succeed no matter what you do."

Harold Mitchell, I, says that he is "still with the General Electric Company, Erie, Pa., Buildings, Grounds, and Power. I have been in Boston at least once a year since 1930 and in '35 hope to be there in June." — The chapter on Phosphate Rock of the *Minerals Yearbook* of the Bureau of Mines again bears the name of Bert Johnson, III.

For about 10 years Sam Seaver, XIII, was selling mining machinery from Haileybury, Ontario. That is near Cobalt, in Timiskaming South, 350 miles from Ottawa. He is now at 58 Servington Crescent, Toronto. — Commander Bob Luce, I, U. S. Coast and Geodetic Survey, has been transferred from Washington to Port Arthur, Texas. — Fred Poole, VI,

has moved from Lancaster, Pa., to Philadelphia. — Walter Burns, V, was married in 1932.

From Ben Lindsly, III, still with the Petroleum Administrative Board, "Now that we are living in Washington, I expect that I will make my visits more frequent to Boston and vicinity than I have during the past several years, and certainly we will both plan sometime to drop in at Middletown for a plate of beans with you." Which is mighty interesting news.

From Frank Carhart, I, second in command of Jackson and Moreland, Boston: "I have just returned from Port of Spain, Trinidad, where I have been for the past month in connection with an arbitration proceeding relating to the electric property and street railway serving that city, and I must say that even with all the snow and extremely cold weather that we are having here, I was glad to get back to Boston. This was my third trip down there in the past two years."

"From December of 1933 until about August of last year, I was in Miami on a rate case which occupied practically my whole time. I must say that I have had plenty of the semi-tropics and tropics to last me for some little time. Even with all my traveling around I have not encountered any '05 men. John Damon, I expect you know, is now the chief engineer of the Wisconsin Public Utilities Commission. He was in Boston and came into the office sometime during the early autumn. He apparently has plenty to do in his new work and enjoys it."

At long last comes a letter from Casey Turner, VI, who insists that his has been a "humdrum existence." His daughter, Helen, is a sophomore at Wellesley, his son, Rodman, a junior at Cranbrook Preparatory School, near Detroit. He says that he expects "to have Rod drive us down to Wellesley during the spring vacation to visit Helen. We expect to kill several birds with this stone, some obvious and the others to show Rod what a wonderful school Tech is and to look you up." Good work, Casey.

John McManus writes from Kingston, N. Y., where he is stationed on the New York Board of Water Supply: "My three boys are six feet tall and all believe themselves pitchers. I act as practice catcher behind a big glove, bought for self-protection. Can't sit by the fireside encased in slippers and robe with kids enticing you to play baseball, hockey, ski, or swim. My daughter is a girl scout counselor at camp in the summer and when the boys are letting me alone, she isn't. You imagine me as thin as a rail? Oh no, every bit of stirring adds to the weight. Built more for comfort than speed. Were I back in the old eight-oared shell, I'd swamp it quicker than our modern crew does at Poughkeepsie."

"I regret the passing from the Institute of men like Porter, Sedgwick, Burton, and Hosmer. They meant a lot to me. The theme of my thesis was sewage. This caused a desire to associate thereafter with nothing but the purest of

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1905 Continued

water, hence my long sojourn in the Catskills." — ROSWELL DAVIS, *Secretary*, Wesleyan Station, Middletown, Conn. SIDNEY T. STRICKLAND, *Assistant Secretary*, 20 Newbury Street, Boston, Mass.

1907

Although we mailed 50 postal cards to as many members of the Class, urging attendance at the general Alumni Home-Coming dinner held on February 9, only seven men appeared — Lawrie Allen, George Crane, Ralph Hudson, Ed Lee, O. L. Peabody, Don Robbins, and Ed Moreland, who, as a Vice-President of the Alumni Association, sat at the head table. We know of several of the "stand-bys" who were sick or had previous important engagements, and no doubt many others of the Class were in similar situations.

Early in February the Secretary called at the office of Clifford Allbright at 308 Boylston Street, Boston. It seems ridiculous that classmates should be in business in the same city for many years, and not at least be familiar with each other's appearance, but frankly, the Secretary would not have known Allbright if he had met him on the street, and Allbright admitted that he had no idea who was calling on him until introductions were made. Our classmate is an architect, with his own office and organization. His wife having died in 1918, and being without children, he lives with his wife's parents in Weston, Mass.

At our local class gathering on December 15, 1934, we learned from Oscar Starkweather that Harry Moody was no longer in Marblehead, Mass., as we had supposed, but he did not know Harry's address. A letter sent to the old address brought the following reply under date of February 4: "Your letter of December 19 was a long time reaching me as, of course, it started out from Marblehead. However, I did receive it about two weeks ago and have been endeavoring to write you ever since but have been so busy I have not had a chance to get to it. As Oscar Starkweather told you, I am no longer in Marblehead and have been in Cleveland since the first of last June. Ossie knew my business address but, of course, he wouldn't remember it. I am now living in Cleveland, or to be exact, Lakewood, which is adjacent to it, and like it quite well here. Thanks for your kind remarks about my always being glad to tell you of such of my personal affairs as would be of interest to my classmates, and I realize I should have written you some time ago.

"Since June of last year I have been with Stevenson, Jordan, and Harrison, Management Engineers. Among other things, this company is acting as general managers for 28 different industries, either for the Code Authority, the Trade Association, or both. The particular industry for which I am responsible is the Porcelain Enameling Industry and it involves the management of four different groups in that industry. It is a good deal like running a three-ring circus, since constantly before one is the problem of advancing the thought of industrial co-

operation, upon the sound theory that with true coöperative advancement within an industry, each member progresses as well. Of course, each member has the selfishness of his own motive to consider, and not the easiest of our jobs is the reconciliation of the individual interest of the members with the interest of the group as a whole. It sometimes really does require considerable selling to have these ideas accepted, strange as it may seem. It is, however, extremely interesting, and I find the men of the industry of a very high type and I have formed some very pleasant relations with them. I am traveling a great deal, perhaps an average of one-half my time, but, as you know, that is nothing new for me. I have been in Boston but once since last June, but Mrs. Moody was back there all of last month.

"My son, Bob, as you know, was graduated from M.I.T. in the Class of 1934 and at present is located in New York, having a position in the Purchasing Department of the General Motors Company, and, for a new graduate, is doing very well indeed both financially and otherwise. I am frequently in New York, so see him rather often."

The following item regarding an '07 man appeared in the Boston *Herald* of February 5: "William Graves Perry, eminent Boston architect, will be the guest speaker at Mrs. William Dana Orcutt's 'Morning of Diversion,' Thursday at 11 A.M. He will speak on 'The Personality of Colonial American Houses,' and will illustrate his lecture with slides taken by a new process of color photography. It was Mr. Perry's company, Perry, Shaw and Hepburn, which was selected by John D. Rockefeller, Jr., to restore the Colonial capital of Williamsburg, Va. Mr. Perry recently was awarded the Elise Willing Balch medal of the National Society of Colonial Dames, for outstanding work in the preservation of Colonial architecture."

Some indication of the varied interests and activities of Carl Trauerman is given by the three following news items gathered from newspapers published in Montana. The Montana *Standard* of January 25 says: "Work in determining Montana's future as a mineral producer, with particular emphasis on gold mining, has been begun by a staff of workers under the direction of the Montana mineral resources committee of the state planning board, as an official project of the Montana relief commission. . . . As a preliminary step in the investigation, records of the State's contributions to the wealth of the world, during the decades since gold was first discovered at Gold Creek in 1858, are being dug out of all available files in the School of Mines library, and elsewhere, and are being analyzed. . . .

"Each mineral-producing area of the state will be reviewed, showing the history and total past production; the geology, type, grade, magnitude, accessibility, together with methods of transportation and treatment of the ore deposits; the availability of power and water, the present activity and the future

possibilities of the area. The great amount of work to be done is indicated by the fact that in one region alone, the Deer Lodge area, more than a thousand mines are listed."

Carl is one of the members of the mineral resources committee. The same paper of February 8 states: "A Montana copper tariff commission was appointed today by Governor Frank H. Cooney, to serve with similar commissions in other copper-producing states in an effort to retain an adequate tariff on copper." The board appointed by the governor, members of which will serve without remuneration, includes not only Trauerman, but also Albert Wiggin of our Class, from Great Falls, Mont.

And, thirdly, a paper published in Butte on February 5 gives the following: "Carl Trauerman, President of the Mining Association of Montana, has returned from Helena, where he went last week to appear before the legislature in connection with contemplated mining legislation. The Butte man was accorded the rare distinction of being permitted to address the Solons from the floor of the senate chamber. Mr. Trauerman told the lawmakers that his association represents the small mine owners of Montana, to which group he gave credit for the movement to increase the price of silver and that of having this nation recognize the world price for gold. He stated that the mining situation is improving and that, with help from the Reconstruction Finance Corporation, many properties that are now idle will resume. He begged the senators to 'consider all mining bills on the basis of the small outfit.'"

Begin to make your plans now to attend the Alumni-Day events in Boston on June 3. — BRYANT NICHOLS, *Secretary*, 12 Newland Street, Auburndale, Mass. HAROLD S. WILSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

1909

About the time these notes appear, the New York crowd will be holding their spring luncheon meeting. The date has not yet been set but if you are to be in New York during the early part of April, you can get the details by calling Paul Wiswall, General Foods Corporation. There are usually a dozen or more of the boys at these semi-annual meetings.

A number of weeks ago Mollie Scharf called up to say "Hello" just as he was leaving for New York, and told me of an amusing incident which occurred on one of his trips. It seems that as he was going to his berth in the Pullman he noticed a gold watch lying in the aisle so picked it up and said, "Does this belong to you No. 8?" Whereupon a hand appeared between the curtains and took the watch. The next morning Harry Whitaker met Mollie in the wash room and said, "Are you the fellow who picked up my watch last night?" Could anyone mistake Mollie's voice?

Paul Wiswall writes that a short time ago he received a letter from Malon Whipple who is connected with the Cape

1909 Continued

Cod Farms, Inc., West Barnstable, Mass., where they prepare and preserve jams and other table delicacies, selling direct to a selected retail trade. Malon is rather proud to have the White House on his customer list. He has a son, Richard, just finishing High School, six-feet, one-inch tall, a 175-pound athlete.

At the Alumni dinner held at the Walker Memorial on February 9 there were seven or eight of the '09 crowd present. George Haynes' dinner was cut short when someone told him that the building which he owned on Newbury Street was on fire. Recently George has taken on a new job, that of Treasurer of the Atlantic Hardware Company, operating a warehouse in South Boston and acting as factory agents for various hardware concerns. They carry in stock everything from carriage bolts, washers, and so on, to pipe tools and ladders.

Brad Dewey told me that his two boys are now in Harvard; Brad, Jr., being in the sophomore class and Davis R., 2nd, in the freshman class. — I also learned that Ray Temple's boy, Allan, is now a senior at Amherst and that his daughter, Jean, is a junior at Mt. Holyoke.

I received from the Alumni office a notation that George Palmer was now a "Dr.," so I wrote to inquire whence the title. It seems that the degree was acquired in 1920 at the University of Michigan in the Department of Public Health, at the time that George was with the Detroit Department of Health as Epidemiologist. In 1923 he went to New York as Director of Research of the American Child Health Association. In January, 1934, when the new City Administration came in New York City, he was appointed Secretary of the Department of Health and of the Board of Health. George says: "This has been an extremely interesting position and has taken me more into the field of administration and out of the strictly research field in which I was formerly engaged. I still continue my connections with the American Public Health Association as a member of the Committee on Administrative Practice and as Chairman of the Subcommittee on the Appraisal of City Health Work. I am also Vice-Chairman of the Section on Child Hygiene of the American Public Health Association."

I was glad to hear from Charles Hibbard a few days ago. Last March he was promoted to the rank of Lieutenant Commander in the Construction Corps of the United States Navy. Since last August he has been on duty at the Navy Yard, Portsmouth, N. H., in connection with the design of submarines — back at the old game after an absence of several years. "We are building two submarines and have the contract for two more for which we are just starting to assemble material." After a miscellaneous experience with shipbuilding concerns, building both surface ships and submarines, Hibbard entered the Construction Corps of the Navy in 1921, serving as superintending constructor at the Lake Torpedo Boat Company, Bridgeport, Conn., and at the plant of the Electric Boat Com-

pany, Groton, Conn., followed by two years as outside superintendent at the Navy Yard, Pearl Harbor, Hawaii. This was followed by two years on the repair ship *Vestal* and four years in the Planning Division of the Navy Yard, New York.

I had a letter from Paul Wiswall saying: "Of all places, twice I have seen Julius Serra in the subway during rush hours. The second time I asked him if he was the man who analyzed spathic iron ore next to me in Bill Hall's lab; he could not deny the allegation. He told me he was a grandfather. How many grandfathers have we? Serra is the first I know about." Paul also writes: "Let King told me the other day he was just finishing up a special assignment with Johns-Manville after several months of research on the use of asbestos products in home building." — CHARLES R. MAIN, Secretary, 201 Devonshire Street, Boston, Mass. Assistant Secretaries: PAUL M. WISWALL, MAURICE R. SCHARFF, New York; GEORGE E. WALLIS, Chicago.

1910

Again we go to press with no letters to publish. We ought to have a flock of them next month because Herb Cleverdon has mailed his first letter about our reunion and we expect a lot of replies. Herb, by the way, is now a grandfather. His grandson, Frederick Herbert Baird, is doing well. Herb says that he has lately run into Luther Davis, who is with Haffenreffer's brewery, Guy Harcourt, who comes on from New York every once in a while, and Ab Allen who drops in periodically.

Herb, Charlie Greene, and I called up all the local members of the Class to get out as many as we could to the dinner in Walker Memorial on February 9, but without any great success. Besides ourselves, the following were there: John Gray, Wallour, Jack Babcock, Phil Taylor, and Dick Fernandez. It was a good dinner and too bad the rest of the gang missed it.

Jack Babcock is the nominee for the next President of the Boston Society of Civil Engineers, the oldest engineering society in the country. Jack has been very active in the society and is writing a history of it. — DUDLEY CLAPP, Secretary, 40 Water Street, East Cambridge, Mass.

1911

It sure is great being back in Worcester, where I came with Jim Duffy, VI, right after graduation to work in the Electrical Cable Works of the American Steel and Wire Company. I remember well the building of this fine Hotel Bancroft a couple of years later, and here I am with the house as promotion manager, ready and anxious to greet all Tech men and, incidentally, ready to receive letters from classmates, something I haven't been doing for a long time.

We were one shy of hitting that famed attendance of 11 at the Alumni Dinner in Cambridge, February 9, the number of classmates being the mean of the date and our numerals. Course I put all the others to shame with seven of the ten men,

Course VI having Cal Eldred and the Secretary, and Course I, Chet Pepper. The Civils were: Suren Bogdasarian, Bill Coburn, Harold Davis, Bill Goodhue, Carl Richmond, Q. W. Stewart, and Alec Yereance. During the course of the evening we decided among ourselves that it was time for a 1911 dinner at Walker Memorial soon, so jot down the date now: Friday evening, April 12, in the new Silver Room at aforesaid Walker Memorial.

It was the first time for ages we had seen Bill Goodhue. He is still with the Metropolitan District Commission, specializing in road construction and maintenance. He is married, has one daughter, and lives at 13 Herrick Street, Winchester, Mass.

John Alter, IV, whose name is connected with many of the best buildings in Lawrence, Mass., where he resides and has his office, has prepared plans and sketches of a mammoth War Memorial for that city, which would cost in the neighborhood of a million-and-a-half dollars. The Lawrence *Sun*, presenting a story and some of the sketches of the imposing structure, has this to say of our John: "John F. Alter was educated in the public schools here and was graduated from the Lawrence High School. Later he was graduated from M.I.T. with degrees of Bachelor of Science and Master of Science in Architecture. For a time he taught in the Chicago School of Architecture, acquiring a wide and varied experience in general architectural practice. His hobby is teaching architecture at the Boston Architectural Club evening school. He is a member of the Elks, Kiwanis, the North Andover Club, the Boston Architectural Club, and the Alumni Association. He is a practicing architect here with offices in the Central Building."

From recent issues of the Boston *Evening Transcript* we learn that Henry C. Robinson, son of Hal and Mrs. Robinson of Worcester, is on the semi-annual senior honor list at Norwich, and Ralph G. Adams, Jr., son of Ralph and Mrs. Adams of Needham and a freshman at Tech, has joined Delta Tau Delta.

Charlie Locke, Alumni Secretary, has sent along this invitation from Kingsley Dennett, II: "Any M.I.T. visitors to Hawaii passing through Honolulu and interested in plantation problems are welcome. Plantation located about 20 miles from Honolulu at Wahiawa." The address is Hawaiian Pineapple Company, Ltd., Phone 2W212 and 2W275."

In closing let me remind you to mark down on your calendar, right now, Monday, June 3, as Alumni Day, when we want a fine delegation of the Class "Back to Tech" for the first of the new type annual alumni reunions. — P.S. Write to Dennie! — ORVILLE B. DENISON, Secretary, Hotel Bancroft, Worcester, Mass. JOHN A. HERLIHY, Assistant Secretary, 588 Riverside Avenue, Medford, Mass.

1912

After a period of inaction, for which we suppose your Assistant Secretary must shoulder most of the blame, we managed

Plan to attend Alumni Day at M.I.T. on June 3, 1935

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to get eight New York Alumni together for luncheon at the McGraw-Hill Building, February 14. Those present were: Cary, Mason, Matthews, Murray, Nicholson, Rhodes, Vaughan, and McGrath. Randall Cremer had expected to attend but suffered a slight accident while horseback riding and was reported lame but not seriously hurt. Bob Wiseman and Eric Kebbon were away on extended trips and Dave Dasso was in Switzerland. Regrets were received from Osborne, Brownlee, Freeman, John Hall, Coddling, and Brackett. Page Golsan and Appelquest planned to come but couldn't make it. Several suggestions were made favoring an evening meeting, which will be tried in the near future.

Emery Lasier sends a note from Niagara Falls, where he is Vice-President of the Titanium Alloy Manufacturing Company; residence, 955 Harrison Avenue. — Nicholson reported that C. H. Harrington was obliged to go to Arizona for his health. Long hours in subway and tunnel work, much of it under air pressure in and around New York City, have taken their toll. We hope Harrington will soon be restored to full and vigorous health in the Arizona sunshine.

We regret to note the death of William H. Lange. His passing was recorded in the death notices of a previous issue. We have learned that he died on August 3 in a New Rochelle hospital after nearly a year's illness. Lange had been for many years director of buildings for the Board of Education, New Rochelle, N. Y., and was one of the first and staunchest supporters of the earlier New York meetings. His absence from recent gatherings had been commented on, but nobody seemed to know the reason. His illness and untimely death give us the answer. We shall miss the unfailing good humor and cheerful optimism which he contributed to our meetings.

Your Assistant Secretary must admit embarrassment in mentioning Christmas in the April issue, but since we hear so infrequently from classmates, it may not be amiss to express our pleasure in receiving many cards from classmates. We hope they will read these notes and consider these lines as our grateful acknowledgment. — On his card from Toronto, Bill Morash pinned this note: "It's nice to read the class notes, when there are any. Nice winter up here. It's a great country for shooting and fishing; what more does anybody want? Best regards to all the Class through your notes."

We have received the bad news of the death of P. L. R. Flansburg. Mrs. Flansburg's letter reads in part: "I received your letter written to Roy about the class luncheon, so I know you have not heard that my husband passed away, February 4, the result of pneumonia. Sometime in the future, possibly, I will fully realize that the pneumonia saved Roy from awful suffering, for the old trouble was spreading rapidly through the throat. . . . Roy enjoyed the class luncheon that he could attend and appreciated so much meeting old friends and the different ideas exchanged." We know that the

Class, and especially Course VI men with whom Flansburg was most closely associated, will join us in extending sincere condolences to Mrs. Flansburg. — FREDERICK J. SHEPARD, JR., *Secretary*, 125 Walnut Street, Watertown, Mass. DAVID J. McGRATH, *Assistant Secretary*, McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York, N. Y.

1914

On Saturday afternoon, February 9, preceding the Boston Technology Dinner, 18 loyal classmates and several friends met in the Faculty Dining Room of Walker Memorial to spend a social two hours and also to see the 1914 reunion movies. Each time these movies are shown they bring forth new comments as to the splendid photography of Herman Affel, who took and contributed these pictures to the Class.

As usual at this gathering, 1914 played host to several of the official staff of the Alumni Association. While the attendance was not as great as that of a year ago, '14 turned out one of the largest, if not the largest, class gatherings of all classes attending the dinner. The only ones attending from outside of Greater Boston were Johnson and Hoyt, of Worcester, and Mackenzie, of Derry, N. H. The local Alumni were: Corney, Crocker, Devine, Fales, Favorite, Gazarian, Goldenberg, Hamilton, Hull, Morrison, Merry, Richmond, Stump, Trufant, and C. H. Wilkins.

Atwood, who has been a regular attendant at these Boston dinners, was unable to get back in time for the dinner, but, perhaps inspired by the fact that he had the unexpected pleasure of having dinner that evening on a Pullman diner with Walter Winchell, sent a telegram expressing his regrets on his absence. This telegram was delivered to the jovial Secretary of the Alumni Association, who took great delight in reading it from the head table and making side remarks about the bad eyesight of your Secretary. Prior to the dinner, we had the honor of initiating as an honorary member the efficient, energetic director of the Technology News Service, Jim Rowlands. William Jackson, another of our honorary members from the Institute Corps, also joined our party.

Probably few of the Class appreciate the world-wide activities of Bob McMenimen. Bob went right into construction work after graduation, building subways, hydroelectric plants, and similar sizable structures. After an interruption of two years due to war service as a cavalry lieutenant, Bob returned to the construction business, this time with the Raymond Concrete Pile Company, of which organization he is now a director. Some of the important projects under his supervision have been the Havana Dock, at Havana, Cuba; the San Mateo Bridge, at San Mateo, Calif.; the Shibaura Engineering Works project, Yokohama, Japan; and at present he is in Aruba, Dutch West Indies, inspecting some construction work for the Standard Oil Company.

With the aid of the Institute records, William Jackson has compiled some records pertaining to the Class. Part of these records are as follows: Presidents of corporations, 25; vice-presidents, 30; treasurers, 36; and 125 more distributed over a wide variety of corporate positions. Thirty-three hold important Federal, state, or municipal positions; 116 are in businesses substantially controlled by themselves; 12 are in the military service, and 20 more are college professors. Approximately one-third of the Class were in military service during the World War. Twenty years after graduation, about 85% of the Class are still living. — HAROLD B. RICHMOND, *Secretary*, 30 State Street, Cambridge, Mass. CHARLES P. FISKE, *Assistant Secretary*, 1775 Broadway, New York, N. Y.

1915

From our mailing list of 457, I have received 106 class dues, a remarkably loyal showing. Plans for our reunion are progressing well and you will soon have a definite announcement of our location. We have had 70 "Yes" replies to our first mailing, and if from these we get 50 to 60 men at the reunion, we'll have a glorious time. We are going to appoint one man in each geographical center to be the flag bearer for that location and to communicate with and urge the men in the surrounding territory to come to the reunion. Our preliminary surveys of the hotels along the Connecticut shore give a delightful impression of the beauties down there and I urge you all to prepare now for a happy reunion.

Our foreign mail runs heavy and interesting. From Paris reliable Doug Baker writes: "I have vague hopes of coming to the States for our Twentieth Reunion in order to help spend it, but it is far too early to decide. As you know, I have a large family. The children should come to the States if any one does, but they are too young to stay there, too numerous to bring for a short trip, and too few to charter a special boat. A few months from now, I shall start negotiating with steamship lines for a special tariff for a *famille nombreuse*. Perhaps I can get special rates as on French railways, where there is a 25% reduction for No. 2, 50% for No. 3, 75% for No. 4 and subsequent numbers."

"I am still doing the same kind of work — administrative manager of laboratories — being now with *Les Laboratoires L.M.T.* The initials stand for *Le Matériel Téléphonique*. I am more settled than when I was working in London, but I still do quite a lot of traveling between London and Paris, with occasional trips to Antwerp or other locations where there are laboratories that interest us." Doug surely is a candidate for long-distance honors if he makes the reunion.

Ken Boynton, with the General Electric in Mexico, writes: "I hope to attend the Twentieth Reunion next summer as I know that with the effort you are putting behind it, it will be a real success. There has been a great increase in the number of tourists coming to Mexico, but I have yet to receive a visit from any of our class-

1915 Continued

mates. I hope that some day I shall have the pleasure of welcoming here, not one, but many of them." — I have a long letter from Benjamin W. Lassaff in Warsaw, and this I am saving for another issue. — Jerry Coldwell continues to travel all over the country. He sent me a three weeks' itinerary from New York across the country and return, during which time he boasts he did not sleep in the same place on any two successive nights. Jerry flies on all these trips and it's fascinating to read his experiences on these new sleeper planes. Jerry complains that on his last trip he was grounded one night in Pennsylvania and one night in Wyoming due to bad weather, so that instead of the usual 21 hours to fly across the continent he took 55. His last letter was written on board a steamer *en route* from San Francisco to Los Angeles. What a life!

After all these years Ralph Hart has come to life with a very good letter from 1440 Broadway, New York. Ralph has been very successful in his own company. He sent me some reprints of some technical papers he has had published and they looked very important and technical. He writes: "I saw Zepfler not long ago, and a mutual friend, connected with the same company, tells me that Zepfler has a splendid position with the Standard Oil of New Jersey, which he joined, I believe, soon after graduation. Kebe Toabe, who now lives in Elizabeth, N. J., has two grown-up boys, almost ready for Tech. But Larry Landers, though married for some time, holds to the old saying that more than two is a crowd. However, I shouldn't find fault as I can still come home, or not at all, whenever I want to without alibis or explanations."

Since his new baby arrived, Joe Phelan has become very kittenish. At any rate, his good nature and good sense of humor are well shown in his letter from Melrose, Mass., patriotically enclosing dues. — Gabe Hilton has just moved to 16 Mayfair Lane, Buffalo, where he now has charge of the Buffalo branch of Brockway Motor Company, Inc. Gabe assures me that he will be at the reunion and will bring with him all the classmates he can contact. The same old Gabe with his loyal class spirit. That's the best advertising we can give you for the reunion, so come and be sure to see Gabe in the flesh, skin, bones and all. From Philadelphia he wrote me as follows: "Jimmy Franks and I are friendly competitors and I see him every now and then. It also develops that Ed Whiting was transferred down here a year before I arrived and, believe it or not, he lives within a few blocks of my home in Narberth. As is usually the case, this proximity was discovered quite by accident."

We are trying to arrange a reunion in Los Angeles so that the boys out there can have dinner on the night that we are dining at the reunion in Connecticut. This idea of Ray Stringfield's is a good one.

Whenever you or your families are enjoying the Silly Symphonies or some of the other beautiful examples of Technicolor motion pictures, be thankful unto

Arthur Ball for his masterful work in developing this process. Unfortunately, Arthur's modesty does not permit his telling us more about himself and his work, as "to write about one's own activities is always a bore. Fortunately, for me, I can this time refer you to the article on the Technicolor process appearing in the October number of *Fortune*, which will give you a good idea of my recent activities. — I am very hopeful of being able to attend the reunion."

Howard King and little Andy Anderson are still boring holes under the ground. It's surprising how they've stood this strain for all these years. The last time I saw Howard King he was none the worse off for his experiences. He writes: "The only news I can report is that Mason and Hanger Company, Inc., has the contract for the shafts and shield-driven tunnel of the Midtown Hudson Tunnel and I am fortunate enough to be the contractor's engineer. It is an interesting job and is going ahead reasonably well. — Hovey Anderson is a shift engineer for the Port of New York Authority on the New Jersey side." — AZEL W. MACK, *Secretary*, 72 Charles Street, Malden, Mass.

1916

Several of the Classmates have come forward with interesting information for the notes and I am glad to relay the following from Flipp Fleming who is with the Goodyear Tire and Rubber Company at Los Angeles. "It has been a long time since I wrote you and furnished you with a little news for the Technology Review. Johnny Ingle and his wife and two boys have been vacationing in San Diego for the past few weeks. Two weeks ago we spent a very pleasant evening with them at our home in Los Angeles. Much of the evening was spent in talking over old friends and old times at M.I.T. We get to see Johnny and his family approximately once every three years, as he only gets back to the States about that often. We have enjoyed visiting with Mrs. McDaniel, mother of Irving B. McDaniel, a few times since living in Los Angeles. Her interest in the M.I.T. boys is still very much alive. — Walt Rivers has left Los Angeles and is now living in Salt Lake City. I see Hepinstall, who is with the Weymouth-Crowell Engineering Company, every now and then. He says to tell you he is in good health and still eating. I also see Levering Lawrason once in a while. He is President of the Deep Water Chemical Company in Compton, Calif.

"In the February Technology Review Ed Weissbach said I could probably write a travelogue. I won't take up enough space for that, but the Fleming family has done plenty of traveling. As we are only temporarily located on the West Coast, we are making every effort to see all while we are here. We have crossed all four borders of the state, and a few of the beauty spots we have seen are the redwoods, the High Sierras, Yosemite, Imperial Valley, and Death Valley. We have lived through an earthquake,

been tied up in a snowstorm in the mountains, caught in a flood, stranded on the desert, and have been in a sandstorm. In fact, we have experienced all the thrills that California has to offer. I eagerly read The Technology Review for news of my classmates, and I take this opportunity to send greetings to all of them. In case any of them come to Los Angeles, I hope they will look me up at the Goodyear Tire and Rubber Company."

Jack Burbank, who is now with the Travelers Insurance Company in Hartford, Conn., writes as follows: "In regard to news, you will be interested to know that Bill Barrett is doing a splendid job handling the entertainment activities of the Technology Club in New York this season and that Dick Ahearn, who is on the Board of Governors, is taking an active interest in the affairs of the Club. Steve Brophy is now going to his office regularly, having been laid up since August, 1933, as a result of an automobile accident, and for the information of our classmates, Steve has made a remarkable recovery. His appearance is rapidly approaching normal. I would venture to say he has submitted to no less than 50 operations since the accident."

"Here is some other important news. Charlie McCarthy, Chief Engineer and Vice-President of the Chance-Vought Company here in Hartford, whom you will remember as the baby of our Class, and who has remained a bachelor all these years, is going to be married on March 1 at a very small wedding ceremony in a chapel at St. Patrick's Cathedral in New York City, to a girl who comes from his native city of Lawrence, Mass. I had dinner with Charlie about two weeks ago. He is the same genial, smiling, agreeable chap that we knew as a classmate."

"I. B. McDaniel, the famous writer of the music for the Tech Show in 1915, famous more recently as being Lieutenant Commander in the Construction Corps of the U. S. Navy for the past several years, has been in New York City. He advised me some weeks ago that as soon as he was able to clean up certain pending work in New York, he is to report for a tour of duty in Boston, with headquarters at the Navy Yard. Since Mac was in New York for two years before I smoked him out, perhaps you had better make a note to dig him out this spring or he may again be lost in the Navy crowd. Be sure to stop off at Hartford when you are traveling to or from New York City. It will be a great pleasure to welcome you here, and, I might say, even to buy you a lunch or dinner."

Standard Oil Company of Indiana announces the resignation of Dr. Robert E. Wilson as a director and Vice-President in charge of research and development and his appointment as vice-chairman of the board of directors of its eastern subsidiary, Pan American Petroleum and Transport Company. — HENRY B. SHEPARD, *Secretary*, 269 Highland Street, West Newton, Mass. CHARLES W. LOOMIS, *Assistant Secretary*, Bemis Bro. Bag Company, Memphis, Tenn.

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1917

From rather intimate experience over a period of years comes the impression that absence from the Annual Alumni Dinner makes the heart — and possibly the tummy — grow fonder, and tales of the affair more interesting. I was unable to attend the party this year but reports have come in from several sources. Not all of the comment can be published, but we find that, as usual, several individuals missed connections. Brick Dunham, for example, arrived too early for an advance group, probably assuming them to be business men, and Lobdell arrived too late for a dinner that actually started on time, probably assuming that it was a gentlemen's affair. The gathering is a mere incident in the general Assembly program for the year being guided by one Hamilton L. Wood, the highlight of the season coming in June when a new type of alumni reunion will be inaugurated with the planning and supervision of his Committee. I have not a complete list of the 1917 men who were at the dinner, nor have I time to get it and still be sure of meeting the editor's rigid schedule. I hear, however, that Lobdell, McDonald and Dunham, Bernard, and Gilmour were present. There were others, but as they did not deviate materially from normal procedure, their names were not registered in the sundry incidents reported.

There seems good prospect of a luncheon or dinner meeting prior to Ham's June reunion. We are told that Lewis W. Douglas will deliver the annual public Godkin lectures at Harvard this spring and we hope we may induce him to be our special guest at a gathering timed to meet his convenience on one of his Cambridge trips.

Penn Brooks reports that he has completed his adjustment of the U. S. Steel Corporation's affairs and has returned to his old love, Sears, Roebuck. Penn appeared in Cambridge in January as a member of the Corporation Visiting Committee of the Department of English and History, joining in a two-day session along with Major General William D. Connor, Superintendent of the Military Academy at West Point. It was reported as the first opportunity on which the late Second Lieutenant of the First Engineers could discuss certain less delightful phases of the A.E.F. Staff work with one of the former Chaumont moguls. The meetings were "in sanctuary" and acquainted as our informant is with certain of the details, he insists that we wait for the publication of the final report of the Committee.

The Dean of Undergraduate Students of the Institute spent a day recently at Exeter, and had luncheon with Phil Hulburd and his family. In the afternoon the Dean met some dozen members of the Exeter staff, including Dr. Perry, discussing relations with the Institute and the fate of Exeter graduates once they get into his clutches. Phil has acquired 30 or 40 extra pounds and with them an air of dignity and competence in good keeping with the Exeter campus. As

Exeter is only some 10 extra miles off the main road to the coast of Maine, this report may well lead to an influx of 1917 visitors during the coming season.

Malcolm C. Brock and Company, now advertising in the Buffalo papers as specializing in Governments, underlying rails, and certain bank stocks, lists Malcolm C. Brock as general partner with some six or seven of Buffalo's financial wizards as associates. — RAYMOND STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass.

1918

There are times when life would be irremediably impoverished if one resisted the vagrant impulse to share a sparkling coincidence just for fear of receiving a deadly note of the "or else" variety. Yet we hope, as we relax into the arms of the evening and report this perverse coincidence, that the tale will be universally greeted with amusement. May no one — we repeat, no one — be left white faced and tottery. Well then, there lie on the desk before us four resplendent clippings describing with more or less glamour the marriage, reported to you last month, of Philip Moss Dinkins to Ella Uppercu. But we are pardonably preoccupied with a fifth clipping, discovered by the alert Secretary of one of the other classes who transmitted it to us with matchless courtesy. The date line is November 27, 1934; the yellow sheet none other than the *New York Evening Journal*; the photograph that of a gay party at the Ritz-Tower (57th Street and Park Avenue, in case you don't know). If there is a crowd, here is a trio whose combined joy should decrease the sum total of anguish in this dreary old world, for each one of them wears the most beguiling of smiles. Reading from left to right, Elizabeth Kendall, Philip Dinkins, and Mrs. Ernest Rice. Interesting, but of no significance, as we used to say about those constants of integration.

Unfinished business awaiting our attention includes reading an article by George Arthur Sackett in the *Journal of Industrial Engineering Chemistry* on "Manganese in Rubber." Not that we are interested in chemistry, but the sort of thing one friend does for another is to make a polite bow to his literary efforts, particularly if the friend has spent time in the Dutch East Indies as Sackett has. Amid the chemical symbols one's frolic fancy may well imagine native girls dancing a movement of the S'Rimpi dance, or the sultan himself in ceremonial robes of native batik, or even a Javanese woman in a sarong.

On February 9 the Alumni had a get-together at Walker, whither gathered Berman (radio store still going strong); Richard Smith (Aeronautic Department No. 1 researcher, who may yet find out what makes the eagle scream); Bill Wills (slightly balder and still winning prizes); Watt (Truscon Steel Company, and all that, you know); Harold Miller (whom we hadn't seen for years and years and years); Cousin Ray Miller (life insurance to suit every man's indi-

vidual needs); Hanley (of the Factory Mutual, who, we deeply regret, has suffered agonies from arthritis). Random gleanings indicate that Pete Strang is still an illusive bachelor, now back at Technology doing graduate work in textile research. The Howard Twins are making artificial leather with the assistance of Ira Young, who is as clever mathematically as ever and still, we wager a Fuller brush, with a mountainous hay stack of uncombed hair.

Lacey, now a Lieutenant Commander in the Navy, has been transferred to the Norfolk Navy Yard. Don MacArdle is with the Gulf Refining Company, Yonkers, N. Y. Dr. Henry Pinkerton has achieved the kingdoms of the earth in the form of a connection with the Harvard Medical School. — And now we must pack our belongings into a bandana handkerchief to be off tomorrow to Dartmouth. — F. ALEXANDER MAGOUN, *Secretary*, Room 4-136, M.I.T., Cambridge, Mass. GRETCHEN A. PALMER, *Assistant Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

1920

The date of the big Fifteenth Reunion at the Norwich Inn, Norwich, Conn., has been set starting Friday, May 31, to Sunday, June 2. This is the week-end immediately preceding the Alumni Day at the Institute. Any classmate who misses this opportunity to enjoy a week-end in the country with every facility for recreation and relaxation is missing the best bet that has come his way for five years, or that will come again for five years more.

I was pleased to receive an announcement of Hank Couch's marriage to Miss Gladys Egdahl on Valentine's Day at Wausau, Wis. Mr. and Mrs. Hank will be at home at 97 Magee Avenue, Rochester, N. Y. Ernie Bangratz is with the Westinghouse Electric and Manufacturing Company, Pittsburgh. John Bartholomew is with the Bendix Products Corporation of South Bend, Ind. Archie Cochran is with the Reynolds Metals Company, 19 Rector Street, New York. Harmon Deal has recently changed his address to 11 Hillside Avenue, Glen Ridge, N. J. Harold Dennison's new address is 36 Carle Road, Wollaston, Mass. Ed Farrow is with the Eastman Kodak Company, Rochester. Howard Field has moved from San Francisco to Los Angeles, address 1868 Cochran Avenue. Fred Fischer is in Kalamazoo, address 2775 Douglas Avenue. Everett French has been located at 44 East Main Street, Orange, Mass. Pierre Lavedan is with the Liquid Carbonic Corporation, 52 Vanderbilt Avenue, New York. Myron Lee is with the Harry Lee Publishing Company in Riverhead, N. Y. George "Pierpont" Morgan has left Lake Charles, La., and moved to Beaumont, Texas, 2540 North Street. Bunk Talcott is in Chicago, address 538 South Wells Street. G. I. Brown is in Ashland, Wis. Ed Sullivan has left Norfolk, Va., and is now in Lowell, Mass., address 39 Loring Street.

Professor Ed Burdell of the Department of Economics and Social Science at the Institute has been getting some front-page publicity on his findings that for married men life not only seems longer but is longer. Since practically all of our Class are married, I might pass along the good news from Ed that not only is the death rate lower and the insurance risk less, but fewer married men commit crimes and fewer go insane. He says: "Marriage is the best insurance in the world — insurance against crime, insanity, poverty, and premature death. The bachelor hasn't the social responsibility of the married man." If we have any bachelors left in the Class, let them take heed. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

1921

This year marks the inauguration of the new plan for a yearly Alumni Day, the first of which will fall on Monday, June 3, the day before Commencement. All members of the Class who wish to join in the Boston festivities should communicate with Henry R. Kurth at 8 Healey Street, Cambridge, or at the Edison Electric Illuminating Company of Boston, 776 Summer Street, South Boston. New Jersey members of the Class will find a further announcement of the M.I.T. Club of Northern New Jersey in another column of this issue.

News has just reached us of the arrival of two new members of the 1921 family. To Mr. and Mrs. Herbert W. Reinhard on January 24, a son, William T. A. Reinhard, weight seven pounds, ten ounces; to Mr. and Mrs. Maxwell K. Burckett on February 17, a daughter, Gail Louise Burckett, weight six pounds, thirteen ounces. A hearty welcome and sincere good wishes.

From the New York *Herald-Tribune* of December 23, 1934: "Miss Doris Katharine Ferguson, daughter of Mr. and Mrs. Peter G. Ferguson of 715 E. 25th Street, Paterson, N. J., was married yesterday to Mr. Albert H. Tomlinson of 25 East 86th Street, New York, son of Mrs. Arthur H. Tomlinson of Swarthmore, Pa.

"Mrs. Tomlinson is a graduate of Montclair State Teachers College and Mr. Tomlinson of Haverford College and M.I.T. He is a director of the Standard-Vacuum Company. Following a reception, the couple sailed for a year's trip around the world. They will reside in New York City on their return."

From the Chicago *Tribune* of January 10, 1935: "Robert M. Felsenthal, executive of Sears, Roebuck and Company, left yesterday for Washington, D. C., on a six months' leave of absence in order to work on a special assignment under Chester Davis, administrator of the Agricultural Adjustment Administration.

"Mr. Felsenthal, a graduate of M.I.T., has been with Sears for about five years. He supervised the building of the company's World's Fair structure and was in charge of the company's World's Fair activities during 1933. He has also been

associated with the Sears research department and various merchandise groups."

Ray reports seeing Mich Bawden in Boston where Mich is reported extremely active with the Dexter Folder Company.

— Don Carpenter is director of manufacturing for Remington Arms at Bridgeport, Conn. Your Assistant Secretary had an enjoyable lunch with Sumner Hayward who ably guided us through the mystery maze which is Brooklyn's. He is engaged in transmission studies with the New York Telephone Company, Willoughby and Bridge Streets, Brooklyn, and makes his home in Ridgewood, N. J. Sumner has two fine youngsters. He reports Sanford Hill married and still with duPont in Wilmington, Del.

Noting that the pulp and paper industry was having its annual get-together, we visited the Waldorf Astoria, where we found Herbert A. Kaufmann hurrying from one of the technical sessions. He reported Professor Freddie Adams and Oscar Neitzke in attendance. Herb is still concerned with starches in the technical service department of Stein, Hall and Co., 285 Madison Avenue, New York City. — Lt. Paul L. Deylitz, Ordnance Department, U.S.A., is located at the Picatinny Arsenal, Dover, N. J. — Your Assistant Secretary has recently been transferred to the company's New York office in charge of sales engineering. We can now be reached care of Acousticon Division of Dictograph Products Company, Inc., 580 Fifth Avenue, New York City, Telephone Bryant 9-8540. — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, South Manchester, Conn. CAROL A. CLARKE, *Assistant Secretary*, 10 University Avenue, Chatham, N. J.

1923

The mid-winter dinner of the Boston Alumni brought out nine members of the Class. In addition to your Secretary, he noted the following present: Charles T. Burke, VI-A, H. B. Golding, II, Bill Greenough, VIII, Bob Hull, XV, Doctors E. E. Kattwinkel, XV, and B. E. Proctor, VII, Roy Sterling, II, and Professor Jack Zimmerman, II. Those present had a good time, but this relatively limited turnout does not augur well for any attempt which this Class might make to take part in the first annual all-alumni "home-coming" reunion scheduled to take place in June. Alumni Day has been set for June 3, the day before Commencement. Please do not let this pessimistic observation deter any fair-haired lad who would like to undertake to arrange some suitable observance of that occasion for the Class of 1923 from coming forward and volunteering his services. I feel sure that if there was someone to take the initiative in this matter, at least a small group could be rounded up.

A member of the Class got into the news in January. I am indebted to *Time* for the following facts: When Mayor LaGuardia of New York City recently threw out his threat to put the city in the power business, Consolidated Gas Company pro-

posed, as a means of meeting the challenge, to have their electrical subsidiaries adopt the so-called Washington Plan for progressive rate reductions. When in 1924, Congress was warring with the Potomac Electric Power Company over rates in the District of Columbia, peace was made on the basis of a program suggested by Major W. E. R. Covell, I, and which later became known as the Washington Plan. Major Covell was then assistant to the engineer-commissioner of the District. His plan was simply that the company and the public utilities commission agree on a more or less arbitrary base rate; the company was entitled to seven and one-half per cent; any profits above that figure were to be divided 50-50 between the company and Washingtonians in the form of rate reductions. *Time's* account indicates that the plan has worked well: the maximum domestic rate has been progressively reduced from 10 cents to 3.9 cents per k.w.h., and the company's return has averaged 10 %. Major Covell is at present stationed in the Canal Zone, where he is active in the affairs of the local Technology Club.

In reporting the fiscal results of the John B. Stetson Company of Philadelphia, the New York *News-Record* announced the appointment of Dale Purves, II, as Assistant Treasurer of that company. Purves has been with the company since 1929 in charge of the industrial standardization department. Following studies at the Institute, he graduated from the University of Pennsylvania in 1924, and spent periods of travel in Europe and South American countries. He was connected with the U.G.I. Contracting Company of Philadelphia as construction engineer and was subsequently with the standardization department of Curtis Publishing Company. He was married in 1933 to Louise Allen of Philadelphia and at present resides in Chestnut Hill, Pa.

Colonel John H. Read, Jr., Army Ordnance, writes: "Under Sec. 1243, R.S., an officer may request that he be put on the retired list. This is a limited list, but upon my request after more than 36 years' service I was granted this privilege. I am enjoying my relief from active duty and this month I expect to move to Miami, Fla." — Kaseshi Bitoh, III, of Kumamoto, Japan, informs me that he is temporarily located in New York City as an inspector for the Imperial Japanese Army. — I have a note from Stephen A. Days, II, who says he would be glad to see any of the boys who get down to Sagamore, Mass., on Cape Cod, where he is operating a branch warehouse for the F. H. Newton Company, lumber dealers of North Cambridge, Mass. Although I think he unnecessarily maligns that which is my own home part of the country, here is what he says: "I have been down here for about four years operating a branch warehouse and selling on the Cape. I built a new home on the site of a summer cottage which burned down about three years ago. There are quite a few old Tech men around here, either re-

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1923 Continued

tired or operating small businesses to take up their minds, so it apparently is a good place to die."

B. P. Harris, Jr., XV, is with the Seaconnet Coal Company, in Providence, R. I. — Robert O. Lee, II, operates a brokerage business in Boston. He reports: "I gave up engineering shortly after leaving M.I.T., and formed a brokerage business of my own in association with a local retired banker who subsequently dropped out of the company, and I have continued carrying along, picking up new associates here and there. I did a little campaigning in the presidential election of 1932 by putting in 70-odd speeches and covering over 1,400 miles, all in behalf of my good friend the Hon. John N. Garner. Like most Tech men, I soon became interested in the opposite sex, with the result that I now have a wife and two growing boys, the latter raising hell most of the time."

Forrest F. Lange, II, has set up as insulation engineer and contractor, handling an aluminum-foil type of insulation in Worcester, Mass., and vicinity. He documents his claim to business as follows: "Apart from a 10° to 20° reduction in indoor temperatures in the summertime, the average home owner does not know the scientific fact, as recorded on page 12 of the U. S. Bureau of Standards Letter Circular 227, dated April 19, 1927, that an insulated home requires about one-third less fuel to keep it at a comfortable temperature in the wintertime." Lange had been with the Linde Air Products Company for a number of years.

Frank M. Gentry, XIV, writes: "The Japanese say that a man has not lived until he has built a home, begotten a child, written a book, and planted a tree. Now I suppose I am ready for the grave." But as to particulars, deponent sayeth not. — Alfred Perlman, XV, is with the Reconstruction Finance Corporation in Washington.

I believe that it is a hopeful sign to find that so many former members of this Class and other Technology classes are finding their way into the many new public agencies which have been set up on a national scale to control economic factors. The thought was aptly expressed to me by a recent caller at my office in connection with the work of an important Federal agency. He was a Technology alumnus, of a class some 30 years ahead of ours and with that much more opportunity to observe the significance of the present economic and political disturbances. His thought was that there are going to be many questions to decide in the near future of great importance to our social and economic welfare, and that it might as well be engineers (rather than lawyers and politicians) who will settle them.

All of which colloquy was suggested by the following from a letter from Ollie Hooper, I. "In June of last year I left the E. M. Gilbert Engineering Corp., in Reading, Pa., to take this position as hydraulic engineer in the power resources division of the National Power Survey (Federal Power Commission). The work

has been mighty interesting, since it has touched on so many phases of the utility business with which I have not been very much acquainted, but with which I've had some contact, and it has been a needed stimulant after not working hard for so many years. Our report, or rather, an interim report, will be out shortly, and you can see the field in which I have been working. John D. Fitch '24 is sitting at the desk behind me as a co-worker, and there are several other Tech men of approximately the same date, including Holland Houston '24, J. V. O'Connor, II, and others I've not met, on the two staffs." — HORATIO L. BOND, *Secretary*, 195 Elm Street, Braintree, Mass. JAMES A. PENNYPACKER, *Assistant Secretary*, Room 661, 11 Broadway, New York, N. Y.

1925

By the time this issue reaches you, you will have received through the mail a letter giving additional details concerning the reunion, but this is to prepare you for it, and to warn you not to make any plans for the week-end of June 1 to June 3 which will interfere with your attendance. In fact, it would be a good plan to arrange any business trip you may be planning to make to Boston or its vicinity to include this date if it would otherwise be impossible for you to come. If you have not received the letter mentioned by the time you get this issue of The Review, write to me at once, as it is possible that we may not have your correct address. If any of you have any ideas which you think should be included in our reunion schedule, let me know at once, so that we may consider them in making our plans.

Heraclio Alfaro, who was a special student with our Class, met with a serious accident at Framingham, Mass., in December. His automobile collided with a fire truck, and he was taken to Framingham Hospital suffering from internal injuries, as well as cuts and bruises. I dropped in to see him three or four days after the accident, and found him out of danger, but likely to be confined for several weeks in order to give time for his injuries to heal thoroughly before leaving. He was very cheerful about it, considering the circumstances, and told me that he would be as good as ever in a few weeks. I have not heard from him since, but assume that he has returned home by the time of the present writing. — HOLIS F. WARE, *Acting Secretary*, 16 Smith Avenue, Reading, Mass. HENRY V. CUNNINGHAM, JR., *Secretary*, 43 Chestnut Street, Boston, Mass.

1926

John Wills, lately with Boston's First National Bank, has moved to Newark, N. J., where he has established the Wills Industrial Research Associates. — Eben Haskell received, with charming appropriateness, a new daughter on St. Valentine's Day. Her name: Lois. She makes two girls for the Haskells, who live in Milton, Mass. — Bob Richardson, as jolly as of yore, called by the office recently. He is sales-engineering with the

Ethyl Company with his headquarters in Portland, and his home in Yarmouth, Maine. He is endowed with three children.

Sid Baylor has been discovered, after long obscurity, living in Auburndale, Mass. — Ralph Colclesser is with the General Electric Company in Erie, Pa. — Irving A. Cowperthwaite, one of the members of our Ph.D. Club, is in the Department of Chemistry, Columbia University. — Sydney Dach is increasing the sales of Sears Roebuck Company in Concord, N. H. — John Dixon is one of that occult group working in the Bell Telephone Laboratories. — Irving L. Lind is with the duPont Ammonia Corporation, Charlestown, W. Va. — Bernard Morgan aids the Viscose Company at Meadville, Pa. — John E. Nicholas, member of our Professorial Order, teaches at State College, Pa. — Curtis R. Washburn, member of our Foreign Legion, works for Good-year in Buitenzorg, Java, N. I. At least that's how he spelled the place.

Again under competitive conditions the Boston group, aided by Hartford, turned out the largest crowd of any class at the mid-winter Alumni Dinner in Walker Memorial. While not up to our last year's record of 45, this year's high of 22 was impressive and a reiteration of the interest and activity of our Boston members. Those present included: Ken Billings, Frank Cramton, Alfred H. Dolben, George Fogg, John Harding, Philip Hatch, Harry Howard, I. R. MacDonald, John E. McMaster, G. Malcolm McNeil, Philip Richardson, Charles Rich, George Warren Smith, E. E. Staples, Alfred Steensen, Frank Toperzer, Cedric Valentine, John Wilbur, and Harold Willoughby. — J. REYNE KILLIAN, JR., *General Secretary*, Room 11-203, M.I.T., Cambridge, Mass.

1927

Once more we can report an official gathering of the Class at a tea held at the University Club, Boston, on February 9, as a preliminary to the Tech dinner held at Walker on that evening. Those present were: Judas Priest, Harry Franks, Fred Byron, Jack Boyle, Dike Arnold, Willard Tougas, Bill Berkeley, Ralph Stober, and Ray Hibbert. Jack Boyle reported that he is now a father and, as no minutes were taken of the proceedings, we cannot record the name of Jack's new Joy — not Boy, for neither did we record that. Fred Byron has his own contracting company — masonry, plastering, and the like. Judas Priest is sales engineer for Mason Neiland Company, makers of temperature and pressure controls as well as automatic recording instruments.

We adjourned this gathering in time to get our own seats at Walker. Last year we were not so fortunate. Your Assistant Secretary had done his level best to notify those interested in the pre-dinner plans, but not successfully. John Swift, Lew Patten, George Taminosian, and Freddy Ward were at the dinner but were uninformed as to the University Club preliminaries. Swift is located in Worcester with the American Steel and Wire Com-

1927 Continued

pany. As a finale to the record of this dinner, a gray pencil has been found and turned over to the "lost and found department" of the Class and may be obtained by calling your Assistant Secretary.

Tom Hegarty has burst into print again. The Boston *Globe* of January 9, 1935, gives the whole story: "Becomes Father and Chairman at the Same Time. — Thomas E. Hegarty, unanimously elected Chairman of the Somerville School Committee for 1935, has been a member of the committee for four years from Ward 1. Last year he was Vice-Chairman of the committee. He attended Boston College and was graduated from M.I.T. in 1927. Mr. Hegarty is married, resides at 43 Minnesota Avenue, East Somerville, and has a son, born Monday night at the Lawrence Memorial Hospital, Medford, a few minutes before his election as chairman."

Dale Stetson, IV, is making rapid strides in the field of art. The New York *Herald-Tribune* of January 9 carried the following item: "One of the largest paintings in the country, a panoramic view of 3,000 square feet of canvas of Manhattan along the East River, has been completed by Dale Stetson, a 29-year-old graduate of the M.I.T., for the new building of the East River Savings Bank at 24 and 26 Cortlandt Street, which will be opened Monday. The painting, in five panels, required six months of technical preparation. Fourteen aerial pictures were taken from an altitude of 4,000 feet. In the painting, the East River is black, while Manhattan is treated in rusts, browns, siennas, and pinks."

We report the wedding on November 30, 1934, of Miss Esther Beatrix Jacobs of Roxbury, Mass., and Sam Pearlman. Our informant tells us that Sam attended the Harvard Business School after graduation from the Institute. — Parks Hodges is with the American Metal Company, Ltd., and field engineer for the Western United States, although his mail address is 61 Broadway, New York City. — JOHN D. CRAWFORD, *General Secretary*, General Radio Company, 30 State Street, Cambridge, Mass. RAYMOND F. HIBBERT, *Assistant Secretary*, Room 101, The Gill Corporation, 238 Main Street, Cambridge, Mass.

1928

The feature of our column for this month concerns the Secretary who is "confined" and consequently is unable to contribute his usual glowing recitation of '28 accomplishments. Before any of you loyal '28 men become unduly alarmed over George's physical well-being, I will try to relieve the anxiety by stating that George is the proud father of a son, Donald Franklin, born January 29. The last dispatch received from the Chatfield Nursery announced that both father and son were doing nicely!

Bob Hunn, IV, recently exhibited three water colors at the exhibition of the Boston Society of Independent Artists, 40 Joy Street, Boston. Bob is gaining an excellent reputation as a water-color artist. — From Cripple Creek, Colo.,

comes word that John F. Shaw, III, has been promoted to superintendent of the Sangre de Cristo property of the Isis Gold Mining Company. Congratulations, John! — On February 9 Stew Newland became a benedict at Shreveport, La. The lucky girl is Minnie Florsheim Weil. To Stew and his bride, the Class sends its congratulations and best wishes for every happiness.

At the banquet for Boston Alumni held in Walker Memorial on February 9, we were well represented. The '28 turnout included the following: Jim Allan, Paul Martini, Joe Parks, Bill Kirk, Joe Guertin, Johnny Carvalho, Mieth Maeser, Jim Donovan, Bill Bendz, Jack Barnes, Vernon Brown, Harry Cade, Bob Harris, Thurston Hartwell, Rudy Slayter, and yours truly.

If our Secretary continues to improve — as we all hope he does — this column next month, will contain material of much more interest than that written by the "pinch hitter," — RALPH T. JOPE, Room 11-203, M.I.T., Cambridge, Mass. — GEORGE I. CHATFIELD, *Secretary*, 5 Alben Street, Winchester, Mass.

1930

We have had considerable correspondence with Hal Spaans, as a result of which Hal has accepted "with some misgivings" the position of Course Secretary for Course XV. The former Secretary has not been very active, but Hal promises to put his course in The Review. We wish to congratulate Hal also on the occasion of the birth of a daughter, Elise Marion, who was born on January 2. Between being a proud father and a Course Secretary, Hal will, we believe, have his hands full. His address, by the way, is care of the Bell Telephone Company of Pennsylvania, 210 Pine Street, Harrisburg, Pa. If you have any news, drop him a line and I am sure he will appreciate your help.

John Worcester has written a rather long and interesting letter, from which Professor Locke has excerpted the following items. He wrote from the Tintic Standard Mining Company at Dividend, Utah, where he is now employed. After his graduation he went to Alaska, and was there engaged in operating a gold property on a lease. He also at one time was engaged in shipping peat from Alaska to California. The lease did not succeed in bringing in any great fortune. The profits that were made were invested in improving their equipment, so that when the ore ran out they were in the unfortunate position of having a lot of equipment and no mine. They scouted for further ore bodies, and some small ones were found, but nothing of any great value. The result was that the lease was abandoned and Worcester went to work with the Fairbanks Exploration Company, one of the Alaskan divisions of the U. S. Smelting Company. He had a geophysical field party making a survey of bed rock and gravel depths. This work was extremely interesting, as it involved not only geophysics, but also many of the operating problems of gold

dredging. When the survey was completed, his superior took Worcester back to the Salt Lake City office of the company, where he went to work in the research laboratory at Midvale. However, when the opportunity came to get back into mining at Dividend, he took it without delay. His job, at the time he wrote, was sampling and surveying at the Eureka Standard Mine of the Tintic Standard Company. This company is doing considerable prospecting and in their shaft sinking have met unusual conditions of high rock temperature and heavy falls of water. On the lower levels the water flows over 2,000 gallons a minute and at a temperature of around 140° Fahrenheit. The ventilation of the workings is a serious problem. The high temperature of the water is very hard on pumps and pipe columns. The whole geological set-up is extremely interesting. Worcester says that the only Tech men he has met on his travels were Marvin Egleston '31 in Alaska and Arnold Keskulla '32 in Utah. He particularly wished to be remembered to any of the Classes of '29 and '30, and requests that, since he now has for the first time an address that promises to be permanent, he would like very much to hear from them. — MORELL MAREAN, *General Secretary*, 2815 North Harrison Street, Wilmington, Del.

1932

From Ed McLaughlin (Engineering Department, Truxillo Railroad Company, Puerto Castilla, Spanish Honduras, Central America) comes the following: "The notice of John Graham's marriage in The Review woke me up to the fact that I know very little of what some of our classmates are doing. I did know about John's marriage, though, and that encourages me to toss in what little I do know, in spite of the fact that I am tucked away in Honduras and am no class Secretary. . . .

"Well, here goes — The Review mentioned Graham's marriage; his prerequisite to marriage (a job) is with Calco Chemical Company in New Jersey. I have one of the prerequisites, too (a job), but the other (a girl) I do not have. My job is with Truxillo Railroad. I drain lagoons, put in tramways, make topographical maps — all that is a fancy way to say I slap mosquitoes, toe dance on snakes, and am always wet, either from sweat or rain (over 200 inches here; page Professor Barrows). I hear from Charlie Martin quite regularly. He is living on Riverside Drive; works for Worthington Pump people (export department, I believe). When he gets snow, he skis; when there is no snow, thinks about skis. . . .

"John Finnerty writes, seldom to the same address and seldom from the same address, twice. I get the letters, though. He is a big shot, I guess, assistant retail sales manager for Gilbert and Barker oil burners. Usually, he writes from Springfield, Mass. He tells me that Red McDonald is in the engineering department for Gilbert and Barker (some place

Plan to attend Alumni Day at M.I.T. on June 3, 1935

1932 Continued

in New York) and that Red will write. I've been here since a year ago last October and Red hasn't written yet! John did not mention it, but I heard from another source that John is getting fat. This gossip is the Lounger cropping out in me after all these years of suppression.

"Paul Monier is in the insurance game in Boston, with New England Mutual, actuarial department. He's another one who owes me a dozen letters. — Carl Wahlström is still on duty with the CCC. He is with the 119th Company, Bellows Falls, Vt. All I know about him is smash-ups. He socked up his new car among other things. I owe him a letter. — Another CCC officer is Parker Howard Devlin, the despair of the Electrical Engineering Department. Parker is in Pittsfield, Mass., to my latest knowledge. He has been in and out of love; see my advantage in being exiled? I hear from Parker in this vein: 'How are you, you old dog. P. H. D.' Ed urges me in very plain language to urge everyone to write. He wishes Paul Gerhard to know he wrote him a letter. Though he may not have received it on account of the address, he wants an answer anyway. Ed plans to meet you all at the delicatessen on June 3 as he is coming north for Alumni Day. — CLARENCE M. CHASE, Jr., *General Secretary*, 539 Central Avenue, Bound Brook, N. J. Carroll L. Wilson, *Assistant Secretary*, Room 3-210, M.I.T., Cambridge, Mass.

COURSE I

Bob McGilvra and Chayabongse are the only faithful ones. Bob has been working for over a year with the bridge department of the Oregon State Highway Commission. He's been resident engineer on several small bridge jobs, and when last heard from was an assistant resident on the Coos Bay Bridge, a two-million-dollar job consisting of 13 reinforced concrete arches and a 1,700-foot cantilever span. It's a beauty, says he. He also reports that Pete Lamy, in many of our classes, but officially '33, was married to Eileen O'Sullivan on October 13 in Boston. They are now living in Sedalia, Mo., where Pete is looking after some of his Dad's banking interests. I ran into Lou Vassalotti the other day. What a man he's becoming — weighs 20 pounds more than when we knew him as our star wrestler. When I met him he was on his way to the gym to work off some of that surplus. For a good part of the summer and until the first of the year, he was working for Perini, the big road contractor, on the new Cambridge to Concord state highway. He had some sort of a foreman's job. Lou likes the contracting game. At a gas station somewhere in Connecticut Lou ran into Don Freeman who was driving a U. S. Geological Survey car. He's been working for quite a while for that outfit in Springfield, Mass., and was then on his way to continue working for them somewhere in the wilds of Texas.

Chayabongse wrote me from the Red Sea, through which he was passing en route to Siam. They were having a

blistering hot winter there. (Come to New England, Chay, and you won't find the heat as blistering — numbing would be more correct.) Chay is working for the Department of Municipal and Public Works in Bangkok, as a sanitary engineer.

Note my new address. I'm still working on my doctor's thesis. It's coming along quite well now after some tough breaks. — ROLF ELIASSEN, *Secretary*, 113 George Street, Providence, R. I.

1933

As this is written in February, there has been an Alumni Dinner in Cambridge and another dinner of the New York group. These meetings are always the best place to meet the boys and the reunions most enjoyable.

Notes from the New York dinner follow. (Incidentally, the next one will be about April 15 at the Technology Club of New York.) Pearson is with the cost accounting department of Colgate-Palmolive-Peet Company. Since he has been with them, Colgate has declared two extra dividends. — Garbarino is with the Crowell Publishing Company. — Cordova is in the fire alarm business. — Shurtleff is on Wall Street. — Dick Payzant is with Boston Edison testing ranges. — Bob Forbes has recently been married. — Hub Grundman is engaged. So is Gene Nedbor, to Miss Ruth Greenwald. — Ed Peterson is married and managing a lumber camp in the Town of Washburn, Maine. Congratulations, boys. Jack Andrews has recently changed his business address and is now with McGraw-Hill on the staff of *Factory Management and Maintenance*, which all Course XV will remember as one of the beginnings of motion study at M.I.T.

We have learned that Lieutenant Harry E. Hubbard is located on the West Coast. I have his address if you want it. W. C. Kabrich is at Edgewood Arsenal, Maryland, as assistant technical director. A line from Bob Kimball tells of the arrival of a future registrar to the Kimball household on Thanksgiving. Congratulations. Bob also tells of Gene Cary's moving to Chicago to a new position which has very promising prospects. Bob is at present busily engaged getting together the Register of Former Students. That's my story for this month, and don't forget my address. — GEORGE O. HENNING, JR., *General Secretary*, 163 Barbey Street, Brooklyn, N. Y. ROBERT M. KIMBALL, *Assistant Secretary*, Room 3-106, M.I.T., Cambridge, Mass.

COURSE I

Here's a brief cross-section of life in Course I. A number of the Class got together the middle of January in New York, including Bill Conant, Ing Madsen, Gene Nedbor, Leo Dewar, and Goodman. Gene reports that Cahaly and Minkus are still working in the same office with him, for the Coast and Geodetic Survey, you know. Bill Conant is still looking around New York for a position, which we hope he's landed by now, while Leo has

recently been transferred from Sobol Brothers to a job with Socony-Vacuum as a super-salesman.

Word comes that Bob Forbes, a familiar figure in Course I haunts, has married a nurse up in Portsmouth, N. H. Herb Grundman, we hear, is also engaged, and it looks suspiciously as if he were going to follow Professor Rogers' advice. Some time ago it was reported that Herb was testing airplane engines for the Ranger Engineering Corporation in Farmingdale, L. I., and commuting to Jersey every week-end. Now it seems, he's landed a job in Philadelphia with Sears, Roebuck, trying to unscramble their telephone system. — Johnny McAleer is working under Dr. Wilbur at the Institute on the new simultaneous-equation machine. I saw Dr. Wilbur recently at the A. S. C. E. convention in New York, and he hopes to have the machine ready for all you computers before your hair turns gray.

It is rumored that Matt Piskadlo is on FERA work, somewhere in the vicinity of Lawrence, Mass. Horace Taul writes from San Francisco that he is studying law at Oakland at night, in addition to his work for the Standard Oil Company. He has been out at Richmond on a special assignment concerning contract jobs at the refinery there. Seems as though we'd have a lawyer in the course yet. — Madsen and I heard that Forbes and Josh Shea passed right through Bethlehem here on their survey a short time ago. If anyone else should be down this way, don't hesitate to call on us at the Fritz Laboratory, and we'll be glad to show you around the lab and the town. — DOUGLAS N. STEWART, *Secretary*, 910 Ostrum Street, Bethlehem, Pa.

COURSE IX

Bill Laird says he keeps out of mischief by managing light opera performances, although he confesses that he worked in a trip to South America last year. And I mean worked in, not worked on. Van de Water lives up to his name as a junior engineer for the Metropolitan Water District (building the Colorado River Aqueduct). Bob Dunleavy has been working right along for Stevenson, Jordan, and Harrison. They have managed various Code Authorities, and at present he's connected with the National Container Association. We hope he doesn't get canned. — Bob Dobson is an estimator and general materials superintendent for some construction companies. They are building highway, power, and so on, projects in various states from Texas to Montana. He writes that he's doing a lot of traveling, largely out of Lincoln, Neb. — Morris Green is at B. U. Medical School and is doing research at a local institution, Evans Memorial Hospital. A graduate fellowship is keeping him at graduate work, aiming for a Ph.D. — By the way, I am in the production department of the American Tube Works. They make brass and copper pipe, and I've been there since last May. — MALVIN J. MAYER, *Secretary*, 64 Nonantum Street, Newton, Mass.

